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TROPICAL FORESTRY AND BIODIVERSITY (FAA 118 & 119) ASSESSMENT REPORT

Community Forest User Group, Dahding, Nepal

JANUARY 2006

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ABBREVIATIONS AND ACRONYMS

ACAP	Annapurna Conservation Area Project
ANSAB	Asia Network for Sustainable Agriculture and Bioresources
CSP	Country Strategic Plan
DFO	District Forest Officer
DNPWC	Department of National Parks and Wildlife Conservation
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization of the United Nations
FECOFUN	Federation of Community Forest Users-Nepal
HMG/N	His Majesty's Government of Nepal
ICIMOD	International Center for Integrated Mountain Development
IUCN	World Conservation Union
KMTWC	King Mahendra Trust for Wildlife Conservation
MAP	Medicinal and Aromatic Plants
MFSC	Ministry of Forests and Soil Conservation
NBS	Nepal Biodiversity Strategy
NBSIP	Nepal Biodiversity Strategy Implementation Plan
NTFP	Non-Timber Forest Products
SO	Strategic Objective
TMI	The Mountain Institute
UNDP	United Nations Development Program
WCMC	Wildlife Conservation Monitoring Center
WWF	World Wildlife Fund

EXECUTIVE SUMMARY

PURPOSE

The purpose of this assessment is to assist USAID/Nepal in taking tropical forestry and biodiversity considerations into account while implementing projects and activities during the one-year extension of the current Country Strategic Plan (CSP, FY 2001-2005/6) and to inform development of the subsequent CSP (2007-2009). Specifically, FAA Sections 118(e) and 119(d), Country Analysis Requirements, state: "Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of:

- the actions necessary in that country to achieve conservation and sustainable management of tropical forests,
- the extent to which the actions proposed for support by the Agency meet the needs thus identified,
- the actions necessary in that country to conserve biological diversity, and
- the extent to which the actions proposed for support by the Agency meet the needs thus identified."

STATUS OF NEPAL'S TROPICAL FORESTS AND BIODIVERSITY

Nepal has an extremely high level of biological diversity at the landscape, ecosystem, and species levels, especially in relation to its small land area. This diversity is the result of Nepal's unique geographic position and altitudinal and climatic variations. Nepal's location in the central portion of the Himalayas places it in the transitional zone between the eastern and western Himalayas. It incorporates the Palearctic and the Indo-Malayan biogeographical regions and the major floristic provinces of Asia (the Sino-Japanese, Indian, western and central Asiatic, Southeast Asiatic, and African Indian desert) creating a unique and rich terrestrial biodiversity.

Nepal is a mosaic of various forest types intermixed with agricultural land, pastures, high mountains, and alpine plateaus, creating a range of landscapes. Ecologically linked to neighboring countries through shared ecosystems, habitats, and rivers, Nepal contains internationally important populations of large mammals that are rare or extinct elsewhere in the world.

THREATS TO BIODIVERSITY

While considerable advances have been made over the past 20 years to develop an institutional, legal, and policy framework that is supportive of conservation, problems associated with actualizing the national vision for conservation persist. In conducting this assessment, the Team has identified the following four direct threats to the conservation of biodiversity in Nepal.

1. Habitat loss/conversion of natural habitat;
2. Overexploitation and illegal exploitation of tropical forest and biological resources;
3. The ongoing Maoist Conflict; and
4. The ineffective integration or mainstreaming of tropical forest and biodiversity conservation goals and objectives into development programs.

The assessment also identified the following three indirect threats to tropical forest and biodiversity conservation that can generally be viewed as underlying the direct threats identified above.

- The inequitable distribution of land and access to natural resources ;
- Insecure land and natural resource tenure; and
- Population pressure and demographic change.

LAWS AND INSTITUTIONS

His Majesty's Government of Nepal (HMG/N) has made significant progress over the past 30 years in the establishment of an institutional, legal, and policy framework that is supportive of biodiversity conservation. This evolution is deeply rooted in recognition of the direct link between the country's diverse biological resources and the livelihoods of the Nepali people and the economic development of the nation.

In the last two decades, both biodiversity conservation and economic development have become increasingly prioritized by the government. The recent Nepal Biodiversity Strategy and Nepal Biodiversity Strategy Implementation Plan (NBSIP) provide a framework to translate the visions of Nepal Biodiversity Strategy into actions for biodiversity conservation and poverty reduction. The NBSIP recommends priority projects for the implementation of the NBS that was adopted by the government as national conservation agenda, based on the prescribed international guidelines on sustainable use of biodiversity for the economic development and well-being of the poorer rural communities. Now that a supportive legal and policy framework has been established, the challenge in the future will be to implement this vision. The ongoing Maoist Conflict has significantly hampered the ability of both the government and international and national NGO/PVO community to engage in the active management of natural resources. In light of this, for conservation to be effective, it will become increasingly important to develop effective means to work directly with local community-based organizations.

ACTIONS REQUIRED TO CONSERVE BIODIVERSITY

It is clear from the discussion in previous sections that Nepal's rich natural heritage of biological diversity is under increasing pressure. Threats to natural resource conservation have been acknowledged by HMG/N, and some important steps have been taken to protect biodiversity, most notably the development of a supportive legal and policy framework. Similarly, the willingness of the donor community to support conservation activities—seeing and understanding the linkages among conservation, sustainable use, and livelihood improvement—is seen as a step in the right direction.

This being said, a tremendous amount of work still needs to be done. The most pressing threats, namely habitat conversion and resource over-exploitation, are increasing in severity, and it can be expected that natural ecosystems and habitats are trending toward greater degradation while rare species are becoming more so. This loss not only has scientific and ethical impact, but also an economic dimension since natural resources provide many Nepalis with subsistence materials as well as cash income. Some biological resources, such as commercially important timber, medicinal and aromatic plants, in addition to tourism, provide much-needed foreign exchange earnings. Unsustainable management of these resources, in addition to the ongoing Maoist Conflict, jeopardize their potential to generate future livelihood and economic benefits.

Actions Needed to Conserve Tropical Forests and Biodiversity

Even with the recognition of the considerable progress made since the approval of the Nepal Biodiversity Strategy in 2002, a considerable amount of work remains to be done in order to accomplish the goals and objectives set forth in the strategy. Based on this assessment, it is the opinion of the authors that the following actions are still needed to support the conservation of tropical forests and biodiversity in Nepal:

- **Provide information and training on sustainable land use practices:** Basic information is required to effectively guide and ensure the sustainability of resource utilization. This capacity needs to be developed and integrated into both governmental and donor-supported activities. Without this basic information (such as, documentation of resource distribution, density, and regeneration rates) capacity for informed or adaptive manage is significantly compromised.
- **Support mechanisms for long-term local governance and management over natural resources:** Current modalities for local-level resource governance and management do not make effective use of economic incentives to build long-term commitment for conservation. At present, user groups are limited in the degree to which they can use and/or manage natural resources. These limitations, coupled with the short timeframe for certain use agreements (e.g., CFUGs operate on a five-year operational planning cycle), have a strong impact on resources used. Addressing this issue will allow interested users to adopt management practices that are based on sound, long-term livelihood and economic principles.
- **Build capacity to mainstream conservation into sectoral development programming:** At present, the large majority of development programs (both governmental programs and those supported through foreign assistance) have made no effort to mainstream conservation. This is true even of the large majority of programs in the natural resources sectors. Supporting cross-sectoral efforts that build capacity to integrate biodiversity conservation goals, objectives, and monitoring into development programming (especially in the forestry, agriculture, and energy sectors) would clearly be one of the best ways to begin broadly addressing conservation needs. This would result in minor additional costs and, if operationalized, would allow donors, implementing organizations, and communities to adapt approaches that would be more supportive of conservation.
- **Provide additional assistance to support conservation in the Mid-Hills and Churiya:** To date, conservation efforts in Nepal have largely focused on the Terai and the High Mountains. Little is known about biodiversity of the Mid-Hills and the Churiya. Expanding conservation efforts into these diverse regions will assist in conserving the unique ecosystems—and the ecosystem services they provide—and the representative biodiversity they contain.
- **Provide assistance to capable local civil society organizations capable of working effectively within the context of the ongoing Maoist Conflict:** While the effects of the Maoist Conflict are numerous and varied, it is clear that the ability of government and, to some extent, the ability of NGOs to operate effectively in conflict areas is extremely limited. As a result, there is in many cases, no effective on-the-ground management (e.g., of forests, protected areas, etc.). One way to mitigate the impacts of management loss stemming from the Maoist Conflict is for donors to work directly with community-based organizations. This approach has been piloted by a small number of donors (including USAID and DANIDA) and appears to be working well.
- **Address inequity in land tenure and resource access/use rights, which are considerable factors underlying the ongoing Maoist Conflict:** The inequality of the land and natural resource tenure systems in Nepal is well documented, as is the role this has played in the evolution of the Maoist Conflict. While by no means an easy task, working to address the inequality in these systems will go a long way toward decreasing tensions.

RECOMMENDATIONS FOR LINKING IMPROVED BIODIVERSITY CONSERVATION TO USAID/NEPAL'S NEW CSP (FY 2007-2009)

The current CSP was developed with a clear recognition of the linkages among biodiversity conservation, good governance, and economic growth. The Mission has initiated and supported efforts designed to promote decentralized natural resource governance and management, and that strive to improve rural livelihoods and enhance the rural economy. As identified in Sections 5 and 6, the ability to effectively address issues of good governance and livelihoods improvement/economic development are absolute necessities if conservation is to succeed in Nepal. The ongoing Maoist Conflict further complicates efforts to address governance and livelihood needs, and poses considerable "new" obstacles to biodiversity conservation.

Through the current CSP USAID/Nepal has targeted the need to improve natural resource governance and increase livelihood and economic benefits associated with conservation. These efforts have experienced some success in terms of their ability to address both habitat loss/conversion and the overexploitation/illegal exploitation of biological resources. However, more could be done to focus Mission programming to increasingly address these threats and to more effectively address conservation needs in light of the ongoing Maoist Conflict.

Given the heavy reliance of rural Nepalis on the natural resource base, the natural resources sector presents an excellent opportunity to further promote good governance and equitable economic development in Nepal. The following recommendations are designed to further assist the Mission and its implementing partners in addressing priority tropical forest and biodiversity conservation needs. For organizational purposes, the suggestions are divided between three headings (governance, livelihood/economics and conflict), although there are clearly overlaps between and among these.

Governance

- Good governance of natural resources requires adequate representation and participation of the various users. It is often the poorest segment of society that is the most dependent on the natural resource base. Conservation-related efforts that do not effectively target and ensure equitable participation of users in all levels of management process (including decision making) will rarely succeed in achieving the goal of equitable development.

- While there is a definite need to directly link conservation activities to livelihood/economic development, leading with livelihood/economic activities in the absence of a structure for good governance can increase the potential for elite capture of economic benefits. In an inequitable setting, investing in good governance in advance of the expectation of economic benefits is important to the long-term success of integrated conservation and development activities.

Livelihood/Economics

- Targeting appropriate livelihood/economic interventions that are compatible with conservation goals is especially important in and around protected areas. Livelihood/economic activities that are selected and promoted without regard for conservation goals and needs may, in fact, negatively impact on conservation.

- Promoting a diversified "basket" of livelihood/economic options is an important step in balancing risk and promoting returns, especially for the more marginalized subsets of a community.

- While promoting high-value commodities for export markets may be an important aspect of natural resource-based enterprise activities, it is also important to not overlook opportunities to develop products and services for which local demand exists. Similarly, there is also a pressing need to ensure that those involved in enterprise development activities have the business skills/development training necessary to adapt and respond effectively to changes in the market.

Conflict

- The Maoist Conflict has significantly limited the capacity of government and many international NGOs to function effectively in promoting biodiversity conservation and economic development. Working through capable local community-based organizations that have the trust of the local communities (and if necessary, building the capacity of local partners) presents a favorable programming option.

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this assessment, as mandated by the Foreign Assistance Act, Section 118 and 119 (FAA 118, Tropical Forests, and FAA 119, Biological Diversity), is four-fold: to assess and determine the:

1. Actions necessary in that country to achieve conservation and sustainable management of tropical forests;
2. Extent to which the actions proposed for support by the Agency meet the needs thus identified;
3. Actions necessary in that country to conserve biological diversity; and
4. Extent to which the actions proposed for support by the Agency meet the needs thus identified.[1]

These requirements are further articulated in USAID's Automated Directives System (ADS), Section 201.3.4.11.b, on mandatory environmental analyses for strategic plans, which:

1. Requires that environmental factors and values are integrated into the USAID decision-making process;
2. Assigns responsibility for assessing the environmental effects of USAID's actions; and
3. Implements the requirements of the National Environmental Policy Act (NEPA) as they affect USAID programs.

This assessment was commissioned, and this report drafted, to comply with these requirements. The assessment was conducted during June and July 2005. As the current CSP (FY 2001 – 2005) has been extended for one year, the assessment is based on current USAID/Nepal Strategic Objectives and programs. This assessment, commissioned in the final 15 months of the Mission's current Country Strategic Plan (CSP), will be used to inform the development of the subsequent CSP, a process which is already underway. The Scope of Work (SOW) for this assessment is presented in Appendix A. Both the SOW and the format for this report were developed using the Agency's most recent guidance for the conduct of Biodiversity Assessments.[2]

1.2 METHODS AND ACKNOWLEDGMENTS

The assessment was conducted by Drs. Jim Schweithelm and Pralad Yonzon, and Mr. Ramzy Kanaan, who worked in Nepal from June 6-July 1, 2005. During the information-gathering phase of the assessment, the Team met with and interviewed over 75 people (see Appendix B, People Consulted). The Team also conducted a thorough literature review of biodiversity conservation and environmental management in Nepal. In total, the Team reviewed over 100 books, papers, and articles (see Appendix C, Documents Consulted).

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[1] Federal Assistance Act, Section 119(d), Country Analysis Requirements.

[2] Byers, B. "Draft Final Report--Biodiversity and Tropical Forestry (FAA 118 & 119) Analyses: Lessons Learned from Recent USAID Field Experience & Practical Guidelines for USAID Staff." ARD, Inc./USAID. March 2005.

The ARD Team met with the USAID/Nepal Mission Environment Officer, Bijnan Acharaya, to confirm the scope and schedule of the assessment. The Team and USAID also agreed on a report outline that would meet both the requirements of FAA 118 & 119, and the needs of the Mission.

The Team subsequently met with Mission staff to gain a better understanding of current and planned future activities. USAID/Nepal is currently in the process of preparing its 2007-2009 CSP. In order to understand the general programming themes of the new results framework to the extent possible, the consultants met with relevant Mission staff, including SO Team Leaders and other Mission staff. The recommendations given in the final chapter of this Biodiversity Assessment Report are based upon this understanding, but it should be recognized that as the details of Mission programming may change, these recommendations may need to be revised.

The Assessment Team also met with a broad range of stakeholders from relevant governmental agencies, bilateral and multilateral donors, and civil society organizations (see Appendix B for a list of persons consulted), to better understand the current context for biodiversity conservation in Nepal. As part of this assessment, the Team conducted two site visits, one to the Pokhara/Annapurna Conservation Area region, and another to the Dahding region. These field visits allowed the Team to meet with selected USAID/Nepal implementing partners, their beneficiaries (e.g., Community Forest User Groups), and other stakeholders.

The Team held exit interviews with various Mission staff on June 28, 2005 to present and discuss preliminary findings and recommendations of the assessment. A draft of the assessment report was completed upon the Team's return to the United States and was submitted to the Mission for review and comment. The report was revised in response to USAID/Nepal and USAID/ANE/TS comments and was submitted in final form to USAID/Nepal and the ANE Bureau.

We are indebted to the many people who helped us understand the current status of biodiversity conservation in Nepal. We would specifically like to thank the staff of USAID/Nepal for their assistance and guidance, especially Dr. Bijnan Acharya, Mr. Netra Sharma Sapkota, and Mr. Naren Chanmugam, with whom we worked most directly.

1.3 OVERVIEW OF THIS REPORT

This report is intended to be a useful biodiversity reference for USAID/Nepal and ANE Bureau staff. It is hoped that this report will be an especially useful tool to assist the Mission in the ongoing process of developing the new CSP (FY 2007 – 2009). The report is designed to be understandable to a general audience of development professionals and addresses issues related to both the governance and sustainable use of biodiversity resources—within the context of the ongoing Maoist Conflict.

The report addresses the following topics in a logical sequence designed to meet the two overall FAA 119 objectives stated above:

- The current status of biodiversity in Nepal;
- The social, economic, and political context for biodiversity conservation;
- Relevant government, NGO, and donor programs and activities;
- Threats to biodiversity;
- Actions needed to conserve biodiversity;
- A review of the current and proposed USAID Strategy and Program, including an assessment of:

- the extent to which current and proposed actions meet the stated priority biodiversity conservation needs;
- the extent to which current and proposed future activities may negatively impact on biodiversity conservation; and

- Opportunities to forge linkages between proposed activities and biodiversity conservation.

2.0 STATUS OF TROPICAL FORESTS AND BIODIVERSITY

INTRODUCTORY NOTE

Before moving into a discussion on the status of tropical forests and biodiversity, the authors of this report want to first comment on an issue that clearly impacts conservation in Nepal, namely the systematic collection and management of data. While His Majesty's Government of Nepal (HMG/N) and donors have been supporting conservation efforts in Nepal for more than three decades, a systematic approach to biodiversity-related data collection and management has yet to be established. The result is a body of information, collected often from grey sources, that may well be of questionable quality. Given the lack of available sources to validate (or invalidate) this information, it tends to be accepted as true, and over time is cited and reproduced. Further complicating matters, most donor-supported activities—even those in the natural resources sector, and those in other sectors implemented in and around priority conservation areas—do not collect biodiversity-related baseline information, making it extremely difficult, if not impossible, to effectively monitor the impacts of these activities on biodiversity and tropical forests. This situation will need to be rectified in order for monitoring to become effective.

2.1 ECOSYSTEM DIVERSITY

Nepal, which straddles the Palearctic and Indo-Malayan biogeographical realms, is located at the convergence of the eastern and western Himalayas. As a result of both its location, and the great and dramatic altitudinal and climatic variation found within its borders, Nepal is home to a tremendous diversity of ecosystems, especially for a country of its size. While the exact number of ecosystems varies from source to source, the HMG/N has recognized 118 ecosystems in Nepal, ranging from tropical monsoon forests to alpine pastures.[3] In broad terms, Nepal's ecosystem diversity can be concisely described within the framework of its five physiographic zones: High Himal, High Mountains, Mid-Hills, Churiya/Siwalik Hills, and Terai Lowlands. These five physiographic zones are described below in Table 2.1.[4]

[3] HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Implementation Plan (Draft), July 2002. (p. 2).

[4] (adapted from numerous sources, including) HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (p..5).

TABLE 2.1: ECOSYSTEMS IN NEPAL'S FIVE PHYSIOGRAPHIC ZONES

PHYSIOGRAPHIC ZONE	ELEVATION (M)	CLIMATE	MAJOR ECOSYSTEMS
High Himal	>5000	Tundra-type and Arctic	Tundra and Arctic
High Mountains	4,000–5,000	Alpine	Upper caragana steppe, Lower caragana steppe, High alpine vegetation, Upper alpine meadows, Dry alpine scrubs, Moist alpine scrub
	3,000–4,000	Sub-Alpine	Fir-blue pine forest, Birch – Rhododendron forest, Fir forest, Larch forest, Fir-oak rhododendron forest, Fir-hemlock-oak forest, Oak forest
Mid-Hills	1,000–3,000	Cool Temperate Monsoon (2,000-3,000 m) and Warm Temperate Monsoon (1,000-2,000 m)	Upper Temperate blue pine forest, Temperate Juniper forest, Spruce forest, West Himalaya Fir-hemlock forest, Temperate mountain oak forest, Lithocarpus forest, Rhododendron forest, Oak-rhododendron forest, Maple-magnolia-sorbus forest, Rhododendron-maple forest Cedar forest, Cypress forest, Blue pine-oak forest, Lower temperate oak forest, Walnut-maple-alder forest, Oak-laurel forest, Olea forest
Churiya	1,000–2,000	Hot Monsoon and Subtropical	Chir pine forest, Chir pine – broadleaved forest, Schima-Castanopsis forest, Eugenia forest
	<1,000	Hot Monsoon and Tropical	Sal forest, Terminalia forest
Terai	<1,000	Hot Monsoon and Tropical	Sal forest, Terminalia forest, Tropical evergreen forest, Riverain forest, Khair-sisoo forest, Savannah grassland

To date, in Nepal, formal conservation efforts have focused predominantly on the Terai and the High Mountains. These efforts have targeted the conservation of rare and endangered megafauna and the unique high mountain environment of the Himalayas—both of which hold high tourism potential. The diverse Mid-Hills and Churiya have received limited conservation focus. As a result, scientific knowledge of Nepal's ecosystem diversity is incomplete. While interest in expanding knowledge of the biodiversity of the Mid-Hills and Churiya exists among HMG/N and donors alike, it is unlikely that any systematic collection of new data will occur until the Maoist Conflict is resolved and peace returns to the country.

2.2 NEPAL'S FORESTS

In Nepal, as in much of the developing world, forests comprise an extremely valuable grouping of natural resources. Estimated to cover approximately 30 percent of Nepal's total land area, the country's forests supply the large majority of household fuels, and more than 50 percent of the fodder needed to support livestock. Forests also supply Nepalis (especially rural Nepalis) with food, medicine, construction materials, and other products. In addition, forest catchments provide the main sources of water for hydroelectric power,

irrigation, and domestic/household consumption.[5] Growing demand for forest resources—associated with an increasing population and stronger market demand—are placing further stress on Nepal's forests. Evidence of this stress has been provided by the World Resources Institute, which has documented an 18 percent decrease in the area of natural forest between 1990 and 2000.[6] Further evidence on the quality of Nepal's forests has been provided by the Wildlife Conservation Monitoring Center (WCMC), which has estimated that at least one quarter of Nepal's remaining forest area is heavily degraded.[7]

PRALAD YONZON, RESOURCES HIMALYA FOUNDATION

Photo No.1: Multiple use in Sal Forests (Shorea robusta), in the Terai, Nepal.

2.2.1 Natural Forests

The Ministry of Forests and Soil Conservation has recognized 35 natural forest types, which have been categorized into 10 major groups: alpine scrub, sub-alpine, temperate coniferous, upper temperate mixed broad-leaved, upper temperate broad-leaved, lower temperate mixed broad-leaved, lower temperate broad-leaved, subtropical conifer, subtropical broad-leaved. and tropical.[8] The habitats and characteristics of these 10 major forest groups were defined in the National Biodiversity Strategy (2002) and are presented .

[5] FAO. SD dimensions: Nepal (http://www.fao.org/sd/WPdirect/WPre0110.htm).

[6] WRI, EarthTrends 2003 Country Profiles: Nepal (http://earthtrends.wri.org/pdf_library/country_profiles/for_cou_524.pdf).

[7] Wildlife Conservation Monitoring Center (WCMC) notes that at least one quarter of the forest area is heavily degraded (WCMC) http://www.wcmc.org.uk/forest/poverty/country%20profiles.htm).

[8] HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (p.12).

CHARACTERISTICS OF THE 10 RECOGNIZED FOREST GROUPS IN NEPAL*

Alpine scrub forest (above 4,100 m): Juniper-Rhododendron associations include *Juniperus recurva, J. indica, J. communis, Rhododendron anthopogon,* and *R. lepidotum* associated with *Ephedra gerardiana,* and *Hippophae tibetana* in inner valleys. *Caragana versicolor, Lonicera spinosa, Rosa sericea,* and *Sophora moocroftiana*, among others, occur north of the Dhaulagiri-Annapurna massif. Alpine meadows, locally called 'Kharka', are subjected to grazing during the summer and rainy seasons. Perpetual snow occurs above 5,200 m, and mosses and lichens are found in scattered locations. *Stellaria decumbens* and *Parrya lanuginosa* have been recorded at an elevation of about 6,100 m, but beyond 6,000 m, in the Arctic desert/nival zone, even mosses do not survive.

Sub-Alpine forest (3,000-4,100 m): *Abies spectabilis, Betula utilis*, and *Rhododendron* forests occur in sub-alpine zones, the latter in very wet sites.

Temperate coniferous forest (2,000-3,000 m): *Pinus wallichiana*, *Cedrus deodara*, *Cupressus torulosa*, *Tsuga dumosa*, and *Abies pindrow* forests characterize the temperate conifer forest type. However, many of the above species also thrive above 3,000 m. *Pinus wallichiana* is an aggressive colonizer and is found in temperate parts of Nepal, extending to 3,700 m. *Cedrus deodara*, *Picea smithiana*, *Juniperus indica,* and *Abies pindrow* forests occur in the western Himalayas. The valley of the upper Bheri River demarcates the eastern boundary for *Cedrus deodara*. *Larix himalaica* forests only occur in the Langtang and Buri Gandaki valleys of Nepal, preferring moraine habitats. *Larix griffithiana* is an eastern Himalayan larch species and extends to 3,940 m. Both *Cupressus torulosa* forests and *Tsuga dumosa* forests are widespread throughout Nepal between 2,130-3,340 m.

Upper temperate mixed broad-leaved forest (2,500-3,500 m): This forest type occurs in central and eastern Nepal, mainly on north and west-facing slopes. *Acer* and *Rhododendron* species are prominent throughout this altitude range. However, *Aesculus/Juglans/Acer* forests are mostly confined to western Nepal.

Upper temperate broad-leaved forest (2,200-3,000 m): *Quercus semecarpifolia* forests are widespread in central and eastern Nepal on south-facing slopes but are absent in heavy rainfall areas such as the upper Arun and Tamur valleys and the hills lying north of Pokhara.

Lower temperate mixed broad-leaved forest (1,700-2,200 m): This type of forest is confined to north and west-facing slopes. In many places, prominent tree species of this forest type belong to the *Lauraceae* family.

Lower temperate broad-leaved forest: This forest type occurs between 2,000-2,700 m in the west and 1,700-2,400 m in the east. *Alnus nitida*, *Castanopsis tribuloides/C. hystrix*, *Lithocarpus pachyphylla,* and several species of *Quercus* forests thrive in the Mid-Hills. Among them, *Alnus nitida* forests are confined to the riverbanks of the Mugu Karnali, at 2,130-2,440 m. *Quercus leucotrichophoral Q. lanuginosa* forests and *Q. floribunda* forests occur mostly in western Nepal, whereas *Q. lamellosa* forests are widespread in central and eastern Nepal. *Lithocarpus pachyphylla* forests occur in eastern Nepal.

Subtropical conifer (pine) forest (1,000-2,200 m): *Pinus roxburghii* forests occur particularly on the south-facing slopes of the Mid-Hills and Siwalik Hills in western and central Nepal.

Subtropical broad-leaved forest (1,000-2,000 m): *Schima wallichii/Castanopsis indica* forests are found in central and eastern Nepal. Riverine forests of *Cedrela/Albizia* occur along large rivers such as the Arun on subtropical foothills. *Alnus nepalensis* forests are widespread along streams and in moist places.

Tropical forest (below 1,000 m): This forest type is predominantly composed of *Shorea robusta* in the southern parts of Nepal. *Acacia catechu/Dalbergia sissoo* forests replace *Shorea robusta* forests along streams and rivers. There are other riverine forests with mainly evergreen species such as *Michelia champaca* or deciduous species such as *Bombax ceiba*. *Shorea robusta* forests are replaced by *Terminalia/ Anogeissus* forests in the foothills of western Nepal.

*HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (p. 12).

2.2.2 Plantation Forests

In an effort to increase forest production, HMG/N has been supporting the establishment of plantation forests in selected degraded forests of the Terai and, to a lesser extent, in the Mid-Hills. While the total area of plantation forests is still quite small, the World Resources Institute (WRI) reports that the area of plantation forests increased from 1990 to 2000 by 5 percent (whereas the area of natural forest decreased over the same period of time by 18 percent).[9] Plantation forests are established using both indigenous and exotic species. In the Terai, these typically consist of *Dalbergia sissoo*, *Eucalyptus* species, and *Tectona grandis*.[10]

2.2.3 Non-Timber Forest Products

Non-Timber Forest Products (NTFPs), or more precisely natural products, are extremely important livelihood and economic resources in Nepal. According to the IUCN, hundreds of natural products are harvested from Nepal's forests and pastures, and are either consumed at the household level (as food, medicine, construction materials, etc.) or traded. While largely informal, the natural products sector provides rural Nepalis with an important alternate source of livelihood/income that can be exploited to a greater or lesser degree from season to season and year to year, depending on need.

While the collection of natural products is prohibited within Nepal's national parks, it is widely acknowledged that collection, in some cases extensive, takes place within the boundaries of most national parks. Collection of natural products also occurs in protected areas and in community-managed land. While some protected area buffer zones and community forests have established policies to regulate the collection of natural products, most collection, in actual fact, is unregulated. As a result, certain natural products are becoming increasingly rare, as harvesting out-paces the regenerative capacity of the plant. Other problems affecting the sustainability of the natural products sector include ad hoc collection/harvesting arrangements, low procurement prices, changing market conditions, trading monopolies, and a lack of processing within the country.[11]

2.2.4 Forest Management

Forest resources in Nepal are categorized into two management regimes: community-managed forests and government-managed forests. These categorizations are described below.

Community-Managed Forest Resources: Community-managed forest resources can be defined as lands, both forested and not, for which use rights have been transferred from government to another entity.[12] Officially, the HMG/N recognizes five types of community-managed forest resources, each of which is described briefly below.[13]

- ***Community Forests*:** Community involvement in forest resources management was initiated in Nepal in the 1970s, and has been a major focus of both HMG/N and donors since the return to democracy in 1990. The principle of community forestry has been supported through various legal and policy

[9] WRI, EarthTrends 2003 Country Profiles: Nepal (http://earthtrends.wri.org/pdf_library/country_profiles/for_cou_524.pdf).

[10] HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (p. 13).

[11] IUCN Nepal (http://www.iucn.org/en/projects/nepal_medicinal_plants.htm).

[12] Note: The degree to which the entity is free to govern use of the land and natural resources varies from one type of community-managed forest to another, and occasionally from region to region.

[13] (adapted from) Shrestha, Dr. T.B., "Status Review: National Strategies for Sustainable Development Forestry/Rangeland/Biodiversity." IUCN, January 2001. (pp. 5 – 13).

mechanisms, including the National Conservation Strategy (1988), the Master Plan for the Forestry Sector (1988), the Forestry Act (1993), and the Forest Regulations (1995).

In Nepal, community forestry refers to national forest land that has been handed over to a user's group through an interactive/democratic process.[14] The Forestry Act legally empowers Community Forest Users' Groups (CFUGs) to:

1. Conserve forest resources;
2. Utilize forest resources on a sustainable basis; and
3. Share benefits that flow from forest resources.

For each community forest, the CFUG responsible is required to develop an Operational Plan to guide and regulate use in conjunction with, and endorsed by, the District Forest Officer (DFO). In promotion of Community Forestry, HMG/N has also supported the development of the Federation of Community Forestry Users-Nepal (FECOFUN), which was intended to assist CFUGs in engaging more effectively with both government and donors. Comprised of rural resource users, FECOFUN both advocates for users' rights, and serves to share information between and among CFUGs. According to the Ministry of Forests and Soil Conservation (MFSC), at the time of this assessment there were roughly 15,000 registered CFUGs—involving in excess of 1.1 million households—responsible for managing approximately three-quarters of one million hectares of community forest.[15]

While considerable strides have been made in devolving and decentralizing forest management, significant obstacles continue to face community forestry in Nepal. These include, but are not limited to:

- Inequitable participation of lower castes and minority ethnic groups, especially in terms of decision making and benefit sharing;
- The likelihood of CFUG members, without guarantees of ownership, or at least longer-term use rights, to focus primarily on "mining" resources instead of "investing" much in resource management (e.g., planting, thinning, etc.);
- Stringent limitations on "how" CFUGs can utilize community forest resources (e.g., regarding whether CFUGs, for example in the Mid-Hills, can engage in commercial sales);
- Overburdened administration—given the role of the DFO (involved in both Operational Plan development and endorsement) and the number of CFUGs in need of support; and
- The limited capacity of government, especially DFOs, to support CFUGs in light of the Maoist Conflict.

[14] Note: In Nepal the HMG/N retains ownership rights over Community Forests; communities are simply granted limited term use rights.

[15] Note: This equates to .68 ha/household; assuming a household of six people, then the average area of community forest per individual is .11 ha/person.

RAMZY KANAAN, ARD, INC.

Photo No. 2: Degraded Community Forest in Dahding, Nepal.

Leasehold Forests: The Leasehold Forest program, which is limited to degraded land (e.g., non-forested land), was designed to assist landless and poor households in gaining access to land capable of supporting forests. To date, the leasehold forest program has met with limited success, in large part due to the administrative processes required to designate leasehold forests.

- ***Private Forests (and Trees on Farmland)***: Defined as a forest planted, nurtured, or conserved in any private land owned by an individual pursuant to prevailing laws, private forests can include both plantations and individual (or small groupings of) trees on farmland.

- ***Religious Forests***: According to the Forestry Act, a Religious Forest is described as a national forest associated with any religious place or its surroundings that has been handed over to a religious body, group, or community for its development, conservation, and utilization for religious activities (e.g., non-commercial). Religious Forests, especially in the Mid-Hills, are often relics of once-large climax forests.

- ***Rangelands***: In Nepal, the term rangeland is used to refer to grasslands, pastures, and shrubland, all of which play an important role in supporting rural livelihoods.[16] Nepal's rangelands contain diverse ecosystems, including subtropical savannas, temperate grasslands, alpine meadows, and the cold, arid steppe north of the Himalaya Range. Nepal's total grazing area is estimated to cover about 1.7 million hectares, or 12 percent of the total land area. About 70 percent of the rangeland is situated in the western and mid-western regions of the country.[17]

  The key sources of rangeland biodiversity in Nepal are sub-alpine and alpine areas which make up nearly 70 percent of Nepal's total rangeland. These high altitude areas are home to a unique assemblage of flora and fauna, including endangered species such as the snow leopard (*Uncia uncia*), Tibetan wolf (*Canis lupus*), lynx (*Felis lynx*), Tibetan wild ass (*Equus heminonus*), and others. One hundred and thirty-one endemic plant species (53 percent of the total number of endemic plants in Nepal) have been identified in Nepal's high altitude rangeland. In addition, of 41 important non-timber forest/natural products, 14 species (primarily medicinal herbs) are found in alpine rangeland.[18]

Government-Managed Forest Resources: Accounting for roughly 85 percent of Nepal's forests, government-managed forest resources include National Forests, Protected Areas, and Protected Watersheds. These classifications are described below.

- ***National Forests***: According to the Forestry Act (1993), HMG/N can declare any forest (or part thereof) that may be of special environmental, scientific, cultural, or other importance as a national forest.[19] The act clarifies the role of government, and in particular of the DFO, in the development and implementation of a Forest Management Work Plan. This work plan is required to regulate licensing, resource harvests, and the distribution of benefits generated through the management of the forest. In the climate of the ongoing Maoist Conflict, the ability of government to effectively manage national forests is highly compromised. District Forestry Offices have been destroyed or forced to close in parts of Nepal, and DFOs have been relocated to Regional Offices. Within this environment, government, even when able to prepare Forest Management Work Plans, is unable to monitor and enforce their implementation. At this point, there is a lack of reliable data to indicate whether the decreased

[16] Note: In Nepal rangelands, defined as grasslands, pastures, and shrublands, are officially designated as a type of community-managed forest.

[17] HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (pp. 13).

[18] (adapted from) HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (pp. 13-16).

[19] HMG/N Ministry of Forests and Soil Conservation, Forest Act, 1993.

management capacity of government is having a negative impact on national forests, but this is certainly a possibility.

- ***Protected Areas***: Protected areas, like national forests, can be declared on any land that is deemed to be of special environmental, scientific, cultural, or other importance. The network of protected areas and its role in conservation is described in subsequent sections of this report.
- ***Protected Watersheds***: In an effort to protect key infrastructure, and minimize the effects of natural disasters, the HMG/N reserves the right to declare a protected watershed. In such an event, the MFSC Department of Soil Conservation and Watershed Management works with stakeholders to develop a management plan. To date, the government has only designated one protected watershed, the Shivapuri Watershed, which is located in the Kathmandu Valley.

2.3 WETLAND, LAKE, AND RIVER BIODIVERSITY

IUCN's Wetland Inventory of Nepal identified 163 sites in the Terai and 79 sites from the Mid-Hills and High Mountains. This inventory covers the whole range of wetland types, including lakes, rivers, and marshes. In general, wetlands provide a unique habitat that can support a wide diversity of flora and fauna. In Nepal, mammals such as the one-horned rhinoceros, tiger, swamp deer, elephant, fishing cat, gharial, Gangetic dolphin, and Asiatic wild buffalo are primarily associated with wetlands. Out of 841 bird species in Nepal, 193 are known to be wetland-dependent. Approximately 100 species of reptiles and 43 species of amphibians have been documented in wetland environments of Nepal, of which one reptilian and nine amphibian species are endemic. A total of 185 species of fish are also found in Nepal's lakes and wetlands, of which eight are known to be endemic.[20]

The major river systems of Nepal are the Mahakali, Karnali, Narayani, and Koshi, which drain the Himalayas and flow south across the Terai into India. These major rivers have tremendous potential for large-scale hydropower development and are locally important as fisheries, supplying the needs of local populations. While the Aquatic Animals Protection Act (1961), the Water Resources Act (1992), and the National Environmental Protection Act (1996) provide protection to certain species associated with wetlands, and require Initial Environmental Examinations (IEEs) and/or Environmental Impact Assessments (EIAs) for all development activities that may have a negative impact on Nepal's wetlands, the institutional framework for monitoring and enforcing compliance is virtually nonexistent.

2.4 SPECIES DIVERSITY

Given the time and costs associated with studying species diversity, knowledge of species diversity in Nepal is incomplete. To date, most documented studies have focused on protected areas, which as noted earlier are located primarily in the Terai and the High Mountains. Nonetheless, all available data indicates very high species diversity (and species richness). While comprising only .09 percent of the world's land area, Nepal is known to support roughly 2.5 percent of all the known fungi, lichen, algae, and moths; 5 percent of bryophytes, gymnosperms, and mammals; and 10 percent of known bird species.[21] As biological studies expand into currently understudied areas such as the Mid-Hills and Churiya, it is virtually certain that the number of known species will increase. A brief summary of known species diversity of Nepal, as documented in the Nepal Biodiversity Strategy, is presented in the text box below.

[20] (adapted from) Environment Nepal, 2005 (http://www.environmentnepal.com.np/wetlands_m.asp?id=15).

[21] (adapted from) HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (pp. 25-26)

SUMMARY HIGHLIGHT OF SPECIES DIVERSITY IN NEPAL*

Platyhelminthes Helminths are invertebrate animals without appendages and with bilateral symmetry. Most species are parasitic. They occur in the wild as well as within domestic plants and animals. In Nepal, helminths are not well studied and helminthological works are confined to the Kathmandu Valley. A checklist of 168 species of helminth parasites has been compiled, with 33 species belonging to the trematodes, 67 to the nematodes, 36 to the cestodes, and 32 species being plant Nematodes (Gupta 1997). Some common plant helminth parasites include *Meliodogyne incognita, M. arenaria,* and *M. javanica,* all of which cause damage to vegetables. *Ascaris lumbricoides, Ancylostoma duodenale,* and *Taenia* species are common human parasites.

Spiders Thapa (1995) reported 144 species of spiders belonging to 17 families. 109 species are endemic, including 33 species that are rare in distribution and three threatened species. Most of the spiders in Nepal have been collected from the High Mountains and Mid-Hills. The far-western region and the entire lowland Terai and Siwalik Hills need further study.

Insects An inventory made by Thapa (1997) covers approximately 5,052 species of insects, of which 1,131 were discovered for the first time and described from Nepalese specimens. *Apis laboriosa*, the world's largest honeybee, *Attacus atlas*, the world's largest atlas moth, and *Epiophlebia laidlawi,* a relict dragonfly species, are three of the best known insect species unique to Nepal.

Butterflies and Moths Among Nepal's fauna, the butterflies are the most studied group throughout the country (Smith 1994; 1997). 640 species of butterflies have been recorded, distributed in different ecological zones. The Red Data Book of the Fauna of Nepal (BPP 1995b) lists 142 species, of which 12 are endangered, 43 are vulnerable, and the rest, 87 species, are susceptible to being threatened. There are four species and 25 subspecies which are possibly endemic (Smith 1997, pers. comm.). There are 557 species in the Mid-Hills, 325 in the Terai, and 82 in the Highlands (BPP 1995h). So far, 2,253 species of moths (excluding Microlepidoptera) have been recorded in Nepal (Smith 1997, pers. comm.).

Fishes The fish fauna of Nepal has been fairly well documented. Many taxonomic changes have been made in the genera and species of fish by Shrestha (2001), who listed a total of 182 species belonging to 11 orders, 31 families, and 93 genera. Altogether, 34 species are known to be threatened and 8 species are endemic.

Amphibians and Reptiles Shah (1995) listed 143 species of amphibians and reptiles in Nepal, with 43 species of amphibians (one salamander, 4 toads, and 38 frogs) and 100 species of reptiles (24 lizards, 14 turtles, 2 crocodiles, and 60 snakes). Studies of amphibians and reptiles have been carried out in a number of areas in Nepal including the Arun Valley in eastern Nepal, Royal Chitwan National Park in central Nepal, and the Annapurna-Dhaulagiri region in western Nepal.

Birds The birds of Nepal have been well studied. 852 species belonging to 18 orders have been recorded (Grimmet *et al*. 2000). Eleven species have become extinct over the last century. 691 bird species are recorded in the Mid-Hills, 648 in the Terai and Siwalik Hills, and 413 in the Highlands. 111 species are confined to the Terai and Siwalik Hills, 29 species are confined to the Mid-Hills, and 24 to the Highlands (BPP 1995f). The richest area for birds is the lowland tropical forest below 300 m in the Terai, where over 500 species have been recorded (Inskipp & Inskipp 1991).

Mammals A comprehensive account of Nepal's mammalian fauna has been produced by Suwal and Verheugt (1995), who listed a total of 181 mammal species belonging to 12 orders and 39 families. Mammals are well represented in the protected areas of Nepal.

*(adapted from) HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (pp. .25-28).

Protected and Threatened Species

The guiding legal and policy framework provides protected legal status for selected plants and animals. Through the National Parks and Wildlife Conservation Act (1973), HMG/N provided protected legal status for 27 species of mammals, nine species of birds, and three reptilian species (Table 2.5a). The Forest Regulations (1995, Amended 2001) provide varying degrees of protection to 19 plant species and forest products (Table 2.5b).[22]

TABLE 2.5a: PROTECTED FAUNAL SPECIES UNDER THE NATIONAL PARKS AND WILDLIFE CONSERVATION ACT, 1973

Common Name	Scientific Name	IUCN*	CITES Appendix**
Mammals			
Red panda	Ailurus fulgens	VU	I
Black buck	Antilope cervicapra	VU	III
Gaur	Bos gaurus	VU	I
Wild yak	Bos mutus	EN	I
Wild water buffalo	Bubalus arnee	EN	III
Tibetan wolf	Canis lupus	VU	I
Hispid hare	Caprolagus hispidus	EN	I
Swamp deer	Cervus duvauceli	EN	I
Asiatic elephant	Elephas maximus	EN	I
Lynx	Felis lynx	EN	II
Striped hyaena	Hyaena hyaena		
Assamese monkey	Macaca assamensis		
Indian Pangolin	Manis crassicaudata		II
Chinese pangolin	Manis pentadactyla		II
Musk deer	Moschus chrisogaster	EN	I
Great Tibetan sheep	Ovis ammon		I
Bengal tiger	Panthera tigris	EN	I
Snow leopard	Panthera uncia	EN	I
Tibetan antelope	Pantholops hodgsoni		I
Clouded leopard	Pardofelis nebulosa	VU	I
Gangetic dolphin	Platanista gangetica	VU	I
Leopard cat	Prionailurus bengalensis		I
Spotted linsang	Prionodon pardicolor		I
Asian one-horned rhinoceros	Rhinoceros unicornis	EN	I
Pigmy hog	Sus salvanius	EX(?)	I
Four-horned antelope	Tetracerus quadricornis	VU	III
Brown bear	Ursus arctos		I
Birds			
Giant hornbill	Buceros bicornis		I
Cheer pheasant	Catreus wallichii	EN	I
White stork	Ciconia ciconia		
Black stork	Ciconia nigra		II

[22] (adapted from) HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (pp. 28-30)

Common Name	Scientific Name	IUCN*	CITES Appendix**
Bengal florican	Eupodotis bengalensis	EN	I
Common crane	Grus grus		II
Impeyan pheasant	Lophophorus impejanus		I
Lesser florican	Sypheotides indica	EN	II
Crimson-horned pheasant	Tragopan satyra		III
Reptiles			
Gharial	Gavialis gangeticus	EN	I
Asiatic rock python	Python molurus	VU	I
Golden monitor lizard	Varanus flavescens	VU?	I

*IUCN Categories: EX=Extinct; EN=Endangered; VU=Vulnerable; NT=Near Threatened

**CITES STATUS:

a) Appendix I includes all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances.

b) Appendix II includes:

i) all species which although not necessarily now threatened with extinction may become so unless trade in specimens of these species is subject to strict regulation in order to avoid utilization incompatible with their survival; and

ii) other species which must be subject to regulation in order that trade in specimens of certain species referred to in subparagraph i) above may be brought under effective control [e.g. species that are similar in appearance to those included in Appendix I].

c) Appendix III includes all species which any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and as needing the cooperation of other Parties in the control of trade.

Citation: http://www.cites.org/eng/resources/terms/glossary.shtml

TABLE 2.5b: PROTECTED PLANT SPECIES AND FOREST PRODUCTS

Plants	HMG Status	IUCN Status	CITES Status
Dactylorhiza hatagirea	I		II
Picrorhiza scrophulariiflora	I		
Juglans regia (bark)	I		
Abies spectabilis	2		
Cinnamomum glaucescens	2		
Cordyceps sinensis	2		
Lichen species	2		
Nardostachys grandifloral	2	VU	
Rauvolfa serpentina	2	EN	II
Asphaltum (rock exudate)	2		
Taxus buccata subsp. wallichiana	2		II
Valerina jatamansii	2		
Acacia catechu	3	NT	
Bombax ceiba	3		
Dalbergia latifolia	3		
Juglans regia	3		
Michelia champaca	3	EN	
Pterocarpus marsupium	3		
Shorea robusta	3		

HMG Protection Status:
1. Species banned for collection, use, sale, distribution, transportation, and export
2. Species banned for export
3. Timber trees banned for felling, transportation, and export

*IUCN Categories: EX=Extinct; EN=Endangered; VU=Vulnerable; NT=Near Threatened
**CITES STATUS:
a) Appendix I includes all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances.
b) Appendix II includes:
i) all species which although not necessarily now threatened with extinction may become so unless trade in specimens of these species is subject to strict regulation in order to avoid utilization incompatible with their survival; and
ii) other species which must be subject to regulation in order that trade in specimens of certain species referred to in subparagraph i) above may be brought under effective control [e.g. species that are similar in appearance to those included in Appendix I].
c) Appendix III includes all species which any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and as needing the cooperation of other Parties in the control of trade.
Citation: http://www.cites.org/eng/resources/terms/glossary.shtml

2.5 AGRO-BIODIVERSITY

2.5.1 Agricultural Biodiversity

Approximately 22 percent (3.2 million hectares) of the total land area of Nepal is under cultivation, with the principal crops being rice (45 percent), maize (20 percent), wheat (18 percent), millet (5 percent), and potatoes (3 percent), followed by sugarcane, jute, cotton, tea, barley, legumes, vegetables, and fruits. Given the ecological and climatic variation, a high degree of agro-ecological diversity has evolved in Nepal. More than 634 documented species/sub-species of food crops are documented, out of which 257 species/sub-species are cultivated. This variability in crop species has been maintained through traditional farming systems and through reliance on local cultivars.[23] To date, in Nepal, very few genetic-level studies of biodiversity have been undertaken for cultivated species.

2.5.2 Livestock Genetic Resources

Livestock is an important component of the Nepalese farming system providing food for humans, manure for plants, draft power for farms, and cash income for farm families. Cattle, buffaloes, sheep, goat, pigs, and poultry are the livestock species reared across different agro-ecological zones.[24]

Nepal is estimated to have 27.7 million domestic animals, which provide 31 percent of the total agricultural output of the country. The number of livestock, and its contribution to overall agricultural output is expected to increase by 45 percent over the next 20-year period.[25] As the cereal deficit continues to worsen, conservation of animal genetic resources may become increasingly a priority for livestock production systems. Twenty-four breeds of cattle, buffalo, sheep, goat, pig, and poultry have been recognized in Nepal so far, but the strains within each breed have not been adequately identified. More breeds/strains of domesticated animals in different ecological belts are yet to be identified and characterized, as endemic breeds are vanishing.

[23] (adapted from) HMG/N Ministry of Forests and Soil Conservation, Nepal Biodiversity Strategy, 2002. (pp. 20-21).

[24] FAO, SD dimensions: Nepal (http://www.fao.org/sd/WPdirect/WPre0110.htm).

25 HMG/N Ministry of Agriculture, Nepal Agricultural Perspective Plan 1995/96-2015/15, 1995.

2.6 ECOSYSTEM SERVICES AND VALUES

Ecosystem services can generally be defined as the services that people obtain from their environment. The services that ecosystems provide are numerous, and can include services that mitigate the effects of drought, floods, and weather extremes; detoxify and decompose wastes; as well as pollinate crops and control agricultural pests.[26] As in other countries where people's livelihoods are closely tied to the natural resources base, these services are extremely important (e.g., nutrient cycling and carbon sequestration). Unlike products—such as trees, NTFPs, and water—which are relatively easy to value, it is often difficult to valuate services provided by ecosystems. Nonetheless, valuation and payment for ecosystem (or environmental) services is proving an effective way to promote conservation and sustainable livelihood development. Two examples of payment for environmental services from Nepal include a revenue-sharing scheme associated with the protected area system, and the Kulekhani watershed, in which upstream residents receive a share of revenue from the downstream hydroelectric facility for maintaining good land management practices in the upper watershed.[27] This is seen as a promising trend that could significantly assist in the creation of benefit structures that are conducive to conservation and sustainable natural resources management.

[26] (adapted from) The Ecological Society of America, 2004.

[27] Note: In the case of the protected are revenue sharing scheme, it should be noted that regardless of a user group's efforts to promote conservation (or not), they still receive a share of revenue.

3.0 SOCIAL, ECONOMIC, AND POLITICAL CONTEXT

3.1 SOCIAL AND ECONOMIC ENVIRONMENT

Nepal is among the poorest and least developed countries in the world. Nepal has an estimated population of 24 million people, and it is estimated that 40 percent of the population lives below the poverty line. Roughly 50 percent of the population lives in the Terai, followed by 45 percent in the Mid-Hills, and the remainder of the population lives in the Mountains. The 2001 census indicated an average population growth rate of 2.27 percent, with the highest population growth rate in the Terai, followed by the Mid-Hills and the Mountains. The economic well-being of Nepal is very closely bound to its natural resources: arable land, water, forested areas, and protected areas.

Agriculture is the foundation of the national economy, accounting for 40 percent of GDP, and provides the livelihood for an estimated 80 percent of the population. Industrial development is focused primarily on agricultural processing and, to a lesser extent, within the Kathmandu Valley on textiles. Nepal has considerable scope for exploiting its potential in hydropower and tourism, areas of recent foreign investment interest. However, security concerns in the wake of the ongoing Maoist Conflict have led to a dramatic decrease in both foreign direct investment and tourism.[28]

There has been an ongoing debate in the development literature starting in the 1970s on the role that rapid population growth and land/natural resource scarcity plays in keeping a large percentage of Nepal's population in poverty. The authors of this report believe that the population/resources imbalance is one cause of Nepal's underdevelopment, and is an underlying cause of natural resource conflict.

3.2 INSTITUTIONS, POLICIES, AND LAWS AFFECTING CONSERVATION

HMG/N has made significant progress over the past 30 years in the establishment of an institutional, legal, and policy framework that is supportive of biodiversity conservation. This evolution is deeply rooted in recognition of the direct link between the country's diverse biological resources and the livelihoods of the Nepali people and the economic development of the nation.

3.2.1 HMG/N

While enhancing livelihoods and improving the overall well-being of its citizens are clear governmental priorities, it is also clear that HMG/N recognizes the contribution of natural resources to the achievement of this goal. This is exemplified in the stated goal of the Nepal Biodiversity Strategy (see text box, below).

[28] (adapted from) CIA. "World Factbook: Nepal" (http://www.cia.gov/cia/publications/factbook/geos/np.html).

EXCERPT FROM THE STATED GOAL OF THE NEPAL BIODIVERSITY STRATEGY

The Nepal Biodiversity Strategy (NBS) is a commitment by His Majesty's Government and the people of Nepal for the protection and wise use of the biologically diverse resources of the country, the protection of ecological processes and systems, and the equitable sharing of all ensuing benefits on a sustainable basis, for the benefit of the people and to honor obligations under the Convention on Biological Diversity. Biological diversity in Nepal is closely linked to the livelihoods and economic development of most of its people, and relates to agricultural productivity and sustainability, human health and nutrition, indigenous knowledge, gender equality, building materials, water resources, and the aesthetic and cultural well-being of the society.

The recently developed Nepal Biodiversity Strategy Implementation Plan (NBSIP) provides a framework to translate the visions of Nepal Biodiversity Strategy into actions for biodiversity conservation and poverty reduction. The NBSIP was adopted by the government as the national conservation agenda, based on the prescribed international guidelines on sustainable use of biodiversity for the economic development and well-being of the poor rural communities.

In addition to the NBS and NBSIP, HMG/N has advanced the enabling environment for conservation through the integration of biodiversity concerns into both the 10th Plan, 2002-2007 (the government's five-year development plan), and the Sustainable Development Agenda for Nepal—both of which are intended to orient governmental and donor activities in achievement of priority development goals. These plans recognize biodiversity conservation as a vehicle for poverty alleviation through the sustainable use of its components and broader participation of the local people. In addition to these crosscutting governmental agendas, HMG/N has also supported the integration of biodiversity concerns into sectoral strategies and plans, some of which are noted below in Table 3.2a.

TABLE 3.2a: ADVANCES IN BIODIVERSITY CONSERVATION AND ENVIRONMENTAL PROTECTION

Year	Events on Environment Protection and Biodiversity Conservation
1988	National Conservation Strategy for Nepal
1988	Master Plan for the Forestry Sector
1993	Nepal Environmental Policy and Action Plan I
1995	Agriculture Perspective Plan
1998	Nepal Environmental Policy and Action Plan II
2000	Revised Forest Policy
2002	Nepal Biodiversity Strategy
2002	Water Resources Strategy
2002	National Wetland Policy
2002	Nepal Water Plan
2003	Sustainable Development Agenda for Nepal
2004	Agriculture Policy

3.2.2 Protected Area System

The Department of National Parks and Wildlife Conservation (DNPWC) has been a key player in conservation activities since the early seventies. The National Parks and Wildlife Conservation (NPWC) Act (1973) enabled Nepal to establish a network of protected areas—in three decades this network has grown to include nine national parks, three wildlife reserves, three conservation areas, and one hunting reserve (the

protected area network is presented in the map at the end of this section). The NPWC Act was amended in 1992 to incorporate provisions for "buffer zones" in the protected area system.[29] The revised Act also required HMG/N to share up to 50 percent of the park/reserve annual revenues with the buffer zones. For those protected areas generating revenue, disbursal to buffer zone communities occurs with the joint approval of the Chief Warden (of the protected area) and the Chairman (of the Buffer Zone Management Committee, BZMC). The Chair of the BZMC then determines how to distribute funds within/among the BZMC membership.

TABLE 3.2b: PROTECTED AREAS IN NEPAL

Protected Area	Designate	IUCN Category[30]	Area (ha)
Langtang NP	National Park	II	17,1000
Royal Chitwan NP	National Park	II	93,200
Sagarmatha NP	National Park	II	114,800
Rara NP	National Park	II	10,600
Koshi Tappu WR	Wildlife Reserve	IV	17,500
Shey-Phoksundo NP	National Park	II	355,500
Khaptad NP	National Park	II	22,500
Dhorpatan	Hunting Reserve	VI	132,500

[29] A buffer zone is a designated area surrounding a national park or reserve within which the use of forest products by local people is regulated to ensure sustainability.

[30] Category Ia: Strict nature reserve/wilderness protection area managed mainly for science or wilderness protection – an area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

Category Ib: Wilderness Area: protected area managed mainly for wilderness protection – large area of unmodified or slightly modified land and/or sea, retaining its natural characteristics and influence, without permanent or significant habitation, which is protected and managed to preserve its natural condition.

Category II: National Park: protected area managed mainly for ecosystem protection and recreation – natural area of land and/or sea designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations; (b) exclude exploitation or occupation inimical to the purposes of designation of the area; and (c) provide a foundation for spiritual, scientific, educational, recreational, and visitor opportunities, all of which must be environmentally and culturally compatible.

Category III: Natural Monument: protected area managed mainly for conservation of specific natural features – area containing specific natural or natural/cultural feature(s) of outstanding or unique value because of their inherent rarity, representativeness, or aesthetic qualities or cultural significance.

Category IV: Habitat/Species Management Area: protected area managed mainly for conservation through management intervention – area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats to meet the requirements of specific species.

Category V: Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation or recreation – area of land, with coast or sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological, and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance, and evolution of such an area.

Category VI: Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural resources – area containing predominantly unmodified natural systems, managed to ensure long-term protection and maintenance of biological diversity, while also providing a sustainable flow of natural products and services to meet community needs.

Protected Area	Designate	IUCN Category[31]	Area (ha)
Parsa WR	Wildlife Reserve	IV	49,900
Royal Bardia NP	National Park	II	96,800
Royal Suklaphanta	Wildlife Reserve	IV	30,500
Annapurna CA	Conservation Area	VI	762900
Makalu-Barun NP	National Park	II	15000
Kanchanjunga CA	Conservation Area	VI	203500
Shivapuri NP	National Park	II	14400
Royal Bardia NP-BZ	Buffer Zone	VI	
Langtang NP-BZ	Buffer Zone	VI	
Sagarmatha NP-BZ	Buffer Zone	VI	
Shey-Phoksundo NP-BZ	Buffer Zone	VI	
Royal Chitwan NP-BZ	Buffer Zone	VI	
Langtang NP-BZ	Buffer Zone	VI	
Royal Suklaphanta WR-BZ	Buffer Zone	VI	
Parsa WR – BZ	Buffer Zone	VI	

[31] Category Ia: Strict nature reserve/wilderness protection area managed mainly for science or wilderness protection – an area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

Category Ib: Wilderness Area: protected area managed mainly for wilderness protection – large area of unmodified or slightly modified land and/or sea, retaining its natural characteristics and influence, without permanent or significant habitation, which is protected and managed to preserve its natural condition.

Category II: National Park: protected area managed mainly for ecosystem protection and recreation – natural area of land and/or sea designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations; (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational, and visitor opportunities, all of which must be environmentally and culturally compatible.

Category III: Natural Monument: protected area managed mainly for conservation of specific natural features – area containing specific natural or natural/cultural feature(s) of outstanding or unique value because of their inherent rarity, representativeness, or aesthetic qualities or cultural significance.

Category IV: Habitat/Species Management Area: protected area managed mainly for conservation through management intervention – area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats to meet the requirements of specific species.

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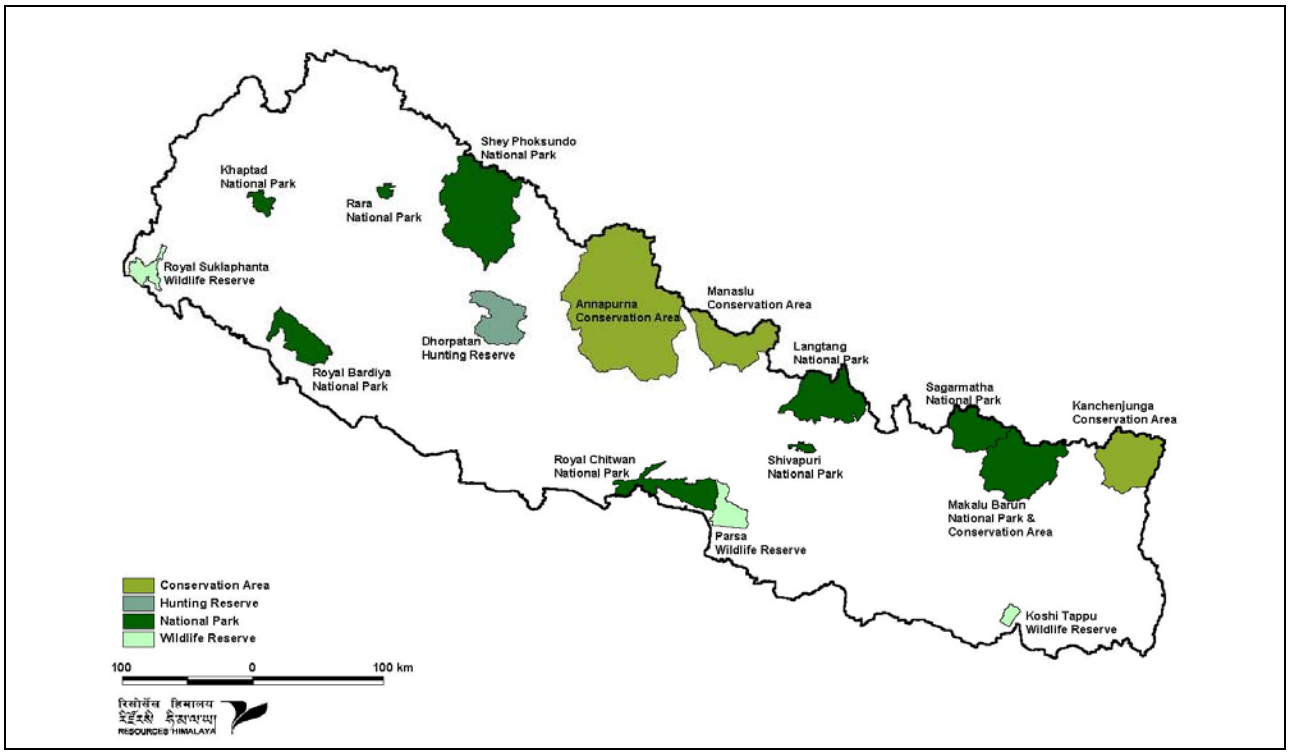

3.2.3 Legislative Measures to Safeguard Nepal's Biodiversity and Forest Resources

1. Aquatic Animals Protection Act 1961: The Aquatic Animals Protection Act 1961 (AAPA) provides for legislative protection for targeted aquatic animal species. There is no designated agency capable of administering and enforcing the AAP Act.

2. National Parks and Wildlife Conservation Act 1973: The NPWCA has been a key instrument in protecting biodiversity. Section 3 of the NPWCA prohibits hunting of any animals or birds, building any house, hut, or other structure; clearing or cultivating any part of the land or harvesting any crops, cutting, burning, or damaging any tree, bush, or other forest product; and mining within national parks or protected areas. Section 10 of the NPWC Act provides complete protection to 26 species of mammals, nine species of birds, and three species of reptiles. The NPWCA was amended in 1992 to incorporate the concept of a buffer zone, and to facilitate public participation in the management of buffer zones. Enforcement of the NPWC Act is largely the responsibility of the Ministry of Forests and Soil Conservation, Department of National Parks and Wildlife Conservation. While enforcement of the Act improved through the 1990s, the ongoing Maoist Conflict has severely limited the ability of the Department of National Parks and Wildlife Conservation to enforce the Act, especially in Maoist-controlled regions of the country.

3. Soil and Water Conservation Act 1982: The SWC Act empowers HMG/N to declare "protected watersheds" to limit environmental degradation of key watersheds. The act was followed in 1985 by Regulations, and together they provide the legal basis for watershed management.

4. Water Resources Act 1992: The Water Resources Act (1992), among other things, required an environmental impact assessment for all water resource and hydroelectric projects. This was the first time an act of government mandated Environmental Impact Assessment (EIA). While development activities have been increasingly subjected to EIA, this is far from always the case.

5. Forest Act 1993: The Forest Act (1993), which acknowledged the role of forest resources in social and economic development, defines the prevailing forest management regimes and, as noted in Section 2, provides the operational guidelines for community forestry.

6. The Environmental Protection Act 1996: The Environmental Protection Act (1996) was primarily designed to promote a clean and healthy environment, curtailing the risk of development activities. The Environmental Protection Act, coupled with the Environmental Protection Regulations (1997), provide the legal "teeth" that enables concerned authorities to require an Initial Environmental Examination (IEE) or EIA for all development activities that may have a negative impact on the environment. As with the Water Resources Act, while development activities are increasingly being subjected to a formal environmental review process, this is far from universally applied.

3.2.4 Participation in International Treaties

Nepal is signatory to four international treaties designed to promote conservation and/or sustainable use. These are:

1. **Convention on Biological Diversity (CBD):** The Convention on Biological Diversity, which evolved out of the 1992 Earth Summit, is designed to promote biodiversity conservation, sustainable use, and equitable benefit sharing—integrating these concepts into a sustainable development agenda. To facilitate implementation of the CBD, the MFSC established a National Biodiversity Unit (NBU) in 1997. In addition to acting as the national focal point for the CBD, the NBU is also expected to monitor implementation and to prepare required update reports.

2. **Convention on Wetlands of International Importance (Ramsar Convention):** The Convention on Wetlands is an intergovernmental treaty established in an effort to promote the wise use and conservation of wetlands. Since acceding to the Ramsar Convention in 1988, one site, Koshi Thappu, has been included on Ramsar's list of Wetlands of International Importance.

3. **UNESCO Convention on the Protection of the World Cultural and Natural Heritage (World Heritage Convention):** The World Heritage Convention was established to safeguard our global natural and cultural heritage. As a signatory of the Convention, Nepal is eligible to receive training and technical assistance to assist in efforts to conserve its considerable natural and cultural heritage. To date, two sites in Nepal, both protected areas, have been officially designated as World Heritage Natural Sites.

4. **Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES):** In 1975, Nepal acceded to CITES an international agreement designed to address threats to the survival of wild plants and animals posed by international trade. Trade in endangered species is reported to both origin and transit through Nepal. While the MFSC is convinced of the need to address this issue, to date there has been limited collaboration and coordination with the security forces (e.g., Immigration, Police, Army) responsible for monitoring Nepal's borders. In order to truly clamp down on the trade in endangered species, it is clear that Nepal's security forces will need to become increasingly engaged.

Nepal's two World Heritage Sites and four Ramsar Sites are presented below.

LOCATION	INTERNATIONAL IMPORTANCE	AREA (HA)
Sagarmatha National Park	World Heritage Natural Site	114,800
Royal Chitwan National Park	World Heritage Natural Site	93,200
Koshi Tappu	Ramsar Convention Site	17,500
Beeshazari Taal	Ramsar Convention Site	3,200
Ghodaghodi Taal	Ramsar Convention Site	2,563
Jagadishpur Reservoir	Ramsar Convention Site	225

4.0 RELEVANT NGO AND DONOR PROGRAMS AND ACTIVITIES

4.1 NGO PROGRAMS

Several national and international NGOs are working on biodiversity conservation, and their scale of operations range from village-level conservation to decision-making bodies. International NGOs active in Nepal include IUCN, WWF Nepal, CARE Nepal, The Mountain Institute, International Center for Integrated Mountain Development, Winrock International, and others. Prominent national NGOs include King Mahendra Trust, LiBird, Federation of Community Forestry Users of Nepal, Bird Conservation Nepal, Nepal Forum for Environmental Journalists, Resources Himalaya Foundation, and others. The active programs for some of these key NGOs are briefly summarized below.

WWF Nepal: WWF Nepal's programs focus on forest and wildlife conservation, climate change, and protection of wetlands and freshwater ecosystems—much of this at a landscape level. Through their programs WWF Nepal seeks to link conservation goals with sustainable development goals, placing emphasis on capacity-building of government and non-governmental partners in Nepal. Among the top priorities of WWF Nepal is the Terai Arc Landscape (TAL) Program.[32] This effort, implemented in collaboration with government and numerous donors and implementing partners, is striving to conserve the environment of the Terai and Churiya, in order to ensure the integrity of the region. In this and other regions of Nepal, WWF is working with local communities (CFUGs) to enhance stewardship of forests and forest resources, stressing sustainable use so that local community needs are met while, at the same time, forest ecosystems are protected and strengthened. Another focal area of WWF Nepal is the Climate Change Program, initiated in August 2003. This program led to a regional project entitled Himalayan Glacier and Rivers Project, implemented in coordination with WWF-India and WWF-China. The project seeks to identify threats to communities, ecosystems, and economic systems posed by increasingly rapidly retreating glaciers. The project will also establish a community-managed response mechanism. In addition, through their Climate Witness Project, WWF hopes to raise awareness of the effects of climate change.

CARE-Nepal: Care-Nepal is currently implementing community development activities in 35 districts of Nepal. These include forestry, water resources management programs, and buffer zone management activities. These programs are largely focused on linking conservation efforts with livelihood improvement. CARE-Nepal is looking to expand the scope of its activities to include a focus on payment for environmental services, primarily through a pipeline project titled "Payment for Environment Services in Asia (PESA): Tradeoffs and Synergies - Securing Environmental Services and Local Livelihoods in Tropical/Sub-Tropical Landscape." Another note of interest, CARE-Nepal is also looking to expand geographically into the Churiya.

[32] USAID's Global Conservation Program, managed by EGAT/NRM/Biodiversity Team, provides funding to WWF Nepal in support of the TAL Program.

The Mountain Institute (TMI): As an organization, TMI seeks to promote preservation of both cultural heritage and natural resources through community-based initiatives. The Himalayan Program of TMI includes projects focused on the border areas between Nepal, and both China and India. The Makalu-Barun Conservation Program in eastern Nepal promotes community-based conservation and enterprise development. The Langtang Conservation and Enterprise Project seeks to preserve both cultural heritage and natural resources in the region through, among other activities, community-based tourism and other small enterprises linked to conservation goals. TMI has also been active in the region of Sagarmatha National Park, where it has worked to facilitate the development of a five-year strategic plan for protected area and buffer zone management.

International Center for Integrated Mountain Development (ICIMOD): ICIMOD's purpose and mission are to foster positive change in the lives and economic realities of mountain people, helping them to overcome social, economic, and physical vulnerability. The organization focuses on sustainable livelihoods of mountain communities, sustainable management of mountain environments and natural resources, and institutional capacity-building. Working exclusively in the Hindu-Kush Himalayan region, ICIMOD has programs in Natural Resources Management, including watershed management, rangeland, pasture and livestock management, and transboundary natural resources management. ICIMOD is also active in the area of environmental management, running programs in water and flood management and climate change.

King Mahendra Trust for Nature Conservation (KMTNC): KMTNC was established by a legislative act in 1982 to work in the fields of nature conservation, biodiversity protection, natural resources management, and sustainable rural development. KMTNC's programs are largely designed to promote biodiversity conservation and livelihood improvement. At present, the Trust is the only nongovernmental organization that has been granted responsibility for managing protected areas within Nepal. At the time of this assessment, KMTNC had assumed full responsibility for the management of the Annapurna and Manaslu Conservation Areas (each on a 10-year basis) and the Central Zoo (on a 30-year basis), and had submitted proposals (e.g., management plans) for the management of Shivapuri, Shey Phoksundo, and Rara National Parks. The Maoist Conflict has dramatically affected the ability of KMTNC to manage the Annapurna Conservation Area. While the Trust previously operated field stations throughout the Annapurna Conservation Area, at the time of the assessment, field offices had been destroyed and field staff had been forced to relocate to the regional office in Pokhara.

4.2 MULTILATERAL DONORS

Multilateral donors active in Nepal in support of forest management and conservation include the United Nations Development Program (UNDP), the Global Environment Facility, and the Food and Agriculture Organization of the United Nations. The programs of key multilateral donors are briefly described below.

UNDP/GEF: The UNDP Country Cooperation Framework in Nepal is based on four programming areas: Pro-poor Policies, Democratic Governance, Environment and Energy, and Overcoming Gender Gaps. The UNDP's environment work is centered on the premise that local people should be empowered to make decisions regarding their own development, and govern their natural resources, including biodiversity, water, forests and land. The UNDP also provides key support designed to build the capacity of HMG/N to address conservation issues. To this end, the UNDP provided support to the development of the Nepal Biodiversity Strategy. Other UNDP environment-related programs in Nepal include The Participatory Conservation Program (PCP) (2002-2006), The Tiger Rhino Conservation Program (TRCP) (2001-2005), the Rural Energy Development Program (REDP), the Tourism for Rural Poverty Alleviation Program (TRPAP) (2001-2005), and the UNDP-Global Environment Facility/Small Grants Program (UNDP-GEF/SGP). The latter supports local NGOs and CBOs to implement community-based environment activities.

4.3 BILATERAL DONORS

Bilateral donors have been instrumental in support of past efforts to improve natural resources management in Nepal. Many of these donors, including the governments of the US, UK, Germany, Denmark, and Holland, have invested considerable resources over the past two decades in promotion of community forestry. Unfortunately, as a result of the February 2005 change in government, a number of bilateral donors have either stopped development assistance programs (e.g., the Danish) or are considering doing so (e.g., the Dutch). The effects of this loss of investment have yet to be felt, but one can only assume that activities that had begun to show promise will lose momentum or worse, backslide. A summary of three important bilateral donor programs is presented below.

DANIDA (Danish Assistance): Prior to February, the Danish-Nepalese development cooperation program focused on five programmatic areas: Education, Natural Resources Management/Environment, Energy, Human Rights/Good Governance/Decentralization, and Private Sector Cooperation. In the Natural Resources Management sector, the largest program supported by DANIDA was the Natural Resource Management Sector Assistance Program (NARMSAP).[33] NARMSAP's five components included Community and Private Forestry, Community Forestry Field Implementation, Soil Conservation and Watershed Management, Tree Improvement and Silviculture, and Central-Level Support. The overall objective of the program was to improve rural livelihoods in Nepal while improving the management of natural resources. A strong emphasis was placed on local participation in natural resources management. In addition to NARMSAP, the Danish government also supported the Environment Sector Program Support (ESPS), which was designed to prevent/control pollution from urban and industrial development.

SNV (Dutch Assistance): SNV works with Nepalese organizations to assist them in carrying out their mandates to alleviate poverty and improve governance. The organization does this through the provision of technical assistance, contacts, and networks. In Nepal, SNV works in three general areas: natural resources management, governance, and private sector development. They focus their natural resources work primarily on decentralized forest management (in 11 districts in the Terai). Specifically, SNV is working with the government and communities to pilot Collaborative Forest Management (CFM) in an effort to improve both forest management and the equitable flow of benefits.

DFID (British Assistance): Support from DFID to Nepal's natural resource sector has primarily come through DFID's Livelihood and Forestry Program (LFP). This 10-year program, which began in 2001, was designed to use forestry as a vehicle to improve livelihoods. With a geographic focus on both the Terai and the Mid-Hills, DFID has tried to make community forestry more pro-poor. Stemming from this and earlier experiences, DFID has supported the development of a series of "good practices."

4.4 GAPS AND/OR INCONSISTENCIES IN DONOR FUNDING

As indicated in the preceding pages, donor and NGO support for natural resource management and conservation activities in Nepal has been considerable. These investments began in the 1970s and have continued through to today. A review of current donor programs indicates two related gaps in donor programming that, if addressed, could be expected to increase conservation impact and benefits. This is briefly discussed below.

To date, most government- and donor-supported conservation activities in Nepal have targeted the Terai and the High Mountains. Support for forestry and watershed management activities has focused largely on the Mid-Hills and the Terai. While the conservation efforts in the Terai and High Mountains have developed some data that could be used to inform forestry, water resources management, and other development activities in these areas, this is not the case for the Mid-Hills. Even though the Mid-Hills have been a major

[33] NARMSPA officially ended in July 2005.

focus of forest and water resource investments, these projects, as designed, have not sought to collect relevant biodiversity baseline from which the impacts of development activities on biodiversity could be monitored. Given the livelihood orientation and the focus on promoting sustainable resource utilization, it is important to understand conditions at the onset of an activity and how these conditions may have been impacted by a given activity.

5.0 THREATS TO TROPICAL FORESTS AND BIODIVERSITY

5.1 DIRECT THREATS

In conducting this assessment, the Team has identified the following four direct threats to the conservation of biodiversity in Nepal.

5. **Habitat Loss/Conversion of Natural Habitat:** Demand for land and natural resources in Nepal is increasing, in tandem with population growth. The impacts of this increased demand are especially significant in the Terai and Mid-Hills, where population pressures are strongest. The World Resources Institute has quantified the impacts on Nepal's forests, calculating an 18 percent decrease in forest cover (and a 19 percent decrease in the area of natural forests) between 1990 and 2000. The large majority of this forest loss has occurred in the Terai and Mid-Hills. While the impacts on biodiversity are difficult to quantify (given the limited baseline), it is logical to assume that the decrease in natural habitat is having a similarly detrimental effect on the biodiversity of the Terai and Mid-Hills.

6. **Overexploitation and Illegal Exploitation of Tropical Forest and Biological Resources:** Increased local, regional, and international demand for natural resources (including wildlife, timber, fuelwood, and a wide range of natural products) is placing significant pressure on a broad diversity of resources. Outside of protected areas, resource harvesting regulations, generally speaking, do not exist. Even where they do, the ability to monitor resource off-take and enforce regulations is extremely weak. The result is a largely unregulated system, which allows demand to dictate resource off-take. In the case of wildlife poaching, while the government has strict regulations in place, its ability to monitor wildlife populations and enforce regulations has been severely compromised by the ongoing Maoist Conflict. This is especially true of key protected areas in the Terai and the High Mountains.

7. **The Ongoing Maoist Conflict:** The ongoing Maoist Conflict has severely impacted the ability of government and its partners to actively engage in regular management of key protected areas in both the Terai and the High Mountains. In Royal Chitwan National Park alone, the Maoist Conflict has forced the DNPWC to scale back from 32 field posts situated throughout the park to nine field posts. In a similar fashion, the KMTNC has been forced from its field offices in the southern Annapurna Conservation Area. These developments, in addition to making regular management impossible, also seriously impact tourism and associated revenue generation, which in turn has a flow-down effect on buffer zone communities.

8. **The Ineffective Integration or Mainstreaming of Tropical Forest and Biodiversity Conservation Goals and Objectives into Development Programs:** While both the government and donors have clearly articulated the linkages among conservation, sustainable use, and rural economic growth, these principles have yet to be effectively integrated into most rural development programs. For example, of the many activities that support harvesting (for either household consumption or sale) of natural products, few have done the research necessary to determine sustainable off-take limits. Without this knowledge, and certainly without the ability to monitor resource off-take, and regulate and enforce rules, it is impossible to know how current activities may impact upon the regenerative capacity of the resource—and as a result, the capacity of the natural resource base to contribute to sustained economic growth. This is true even of certain conservation activities—for example, many of the activities targeting livelihood improvement in the protected area buffer zones of the Terai, where both donor funds and

BZMC tourism revenues have been used to support livelihood activities (e.g., goat raising) without an understanding of how these activities may impact upon (or be impacted by) conservation.

The assessment also identified the following three indirect threats to tropical forest and biodiversity conservation that can generally be viewed as underlying the direct threats identified above.

- **The Inequitable Distribution of Land and Access to Natural Resources:** The inequitable distribution of land and natural resources resulting from a combination of the prevailing social, religious, and political systems undermines efforts to promote sustainable natural resource management. Traditional systems for allocating land and natural resources have evolved over time to benefit elites. In addition, the economic benefits of governmental and donor programs that are intended to support the community as a whole are often captured by elites, forcing those who are disenfranchised to further pursue unsustainable livelihood strategies.
- **Insecure Land and Natural Resource Tenure:** Tenurial insecurity is proven to impact both the degree to which stakeholders are willing to invest in land and natural resource management, and the strategies stakeholders pursue to capitalize on benefits from land and natural resources. In Nepal, this has a direct effect on the degree to which CFUGs and BZMCs are willing to invest in the management of these resources.
- **Population Pressure and Demographic Change:** The result of a growing population is an increase in demand for land and natural resources. In Nepal, this increased demand is most pronounced in the Terai and Mid-Hills, where population densities and population growth rates are highest.

6.0 ACTIONS NEEDED TO CONSERVE TROPICAL FORESTS AND BIODIVERSITY

It is clear from the discussion in previous sections that Nepal's rich natural heritage of biological diversity is under increasing pressure. Threats to natural resource conservation have been acknowledged by HMG/N, and some important steps have been taken to protect biodiversity—most notably, the development of a supportive legal and policy framework. Similarly, the willingness of the donor community to support conservation activities (seeing and understanding the linkages among conservation, sustainable use, and livelihood improvement) is seen as a step in the right direction.

This being said, a tremendous amount of work still needs to be done. The most pressing threats, namely habitat conversion and resource over-exploitation, are increasing in severity. It can be expected that natural ecosystems and habitats are trending toward greater degradation while rare species are becoming more so. This loss not only has scientific and ethical impact, but also an economic dimension since natural resources provide many Nepalis with subsistence materials as well as cash income. Some biological resources, such as commercially important timber, medicinal and aromatic plants, in addition to tourism, provide much-needed foreign exchange earnings. Unsustainable management of these resources, in addition to the ongoing Maoist Conflict, jeopardize their potential to generate future livelihood and economic benefits.

ACTIONS NEEDED TO CONSERVE TROPICAL FORESTS AND BIODIVERSITY

Before entering into a discussion of the actions needed to conserve biodiversity, the authors believe it is worth briefly reviewing the recent progress of the government in developing a supportive framework for conservation.

Nepal's Biodiversity Strategy, which was developed in 2002, was built on the following major pillars:

- Protecting a representative sample of ecosystems and habitats within a **protected area system** (this system is currently estimated to cover 26,695 km,^{2} or 18.32 percent of the total area of Nepal);
- Protecting species and habitats within **landscapes**, including those designated for agriculture and natural resource extraction;
- **Maintaining species and genetic material *ex situ*** in the botanical garden, gene banks, and the zoological park;
- Protecting biodiversity by **reducing the negative environmental effects** of urban, industrial, energy, and agricultural development;
- **Reducing pollution** to rivers, lakes, and wetlands from sewage and solid waste;
- **Raising the awareness of the Nepali people** about the need to conserve biodiversity; and
- **Improving the legal framework** for biodiversity conservation.

Since the development of the Biodiversity Strategy, the government has proceeded to develop a Draft National Biodiversity Implementation Plan (NBIP), which describes the national development policy and planning, international conventions, and treaties to which Nepal is a party, as well as biodiversity-related legislation. The NBIP also describes priority activities to address the management of protected areas, forests, rangelands, agrobiodiversity, wetlands, and mountain biodiversity, and provides a framework for the cross-sectoral coordination needed to ensure sustainable management. The implementation plan addresses fundamental concerns of biological diversity management and covers strengthening of the national biodiversity unit, landscape-level biodiversity conservation, IPRs legislation, *in situ* conservation, incentive measures, research and training, awareness and education, access to genetic resources, institutional capacity-building and linkages, gender and indigenous peoples' concerns, technical and scientific cooperation, and financial resources. The NBIP also identifies specific objectives and actions to be carried out over a period of time which are expected to result in enhanced conservation and sustainable utilization of biodiversity.

Even with the recognition of the considerable progress made since the approval of the Nepal Biodiversity Strategy in 2002, a considerable amount of work remains to be done in order to accomplish the goals and objectives set forth in the strategy. Based on this assessment, it is the opinion of the authors that the following actions are still needed to support the conservation of tropical forests and biodiversity in Nepal.

- **Provide information and training on sustainable land use practices:** Basic information is required to effectively guide and ensure the sustainability of resource utilization. This capacity needs to be developed and integrated into both governmental and donor-supported activities. Without this basic information (i.e., documentation of resource distribution, density, and regeneration rates), capacity for informed or adaptive manage is significantly compromised.
- **Support mechanisms for long-term local governance and management over natural resources:** Current modalities for local-level resource governance and management do not make effective use of economic incentives to build long-term commitment for conservation. At present, user groups are limited in the degree to which they can use and/or manage natural resources. These limitations, coupled with the short timeframe for certain use agreements (e.g., CFUGs operate on a five-year operational planning cycle), have a strong impact on resources used. Addressing this issue will allow interested users to adopt management practices that are based on sound, long-term livelihood and economic principles.
- **Build capacity to mainstream conservation into sectoral development programming:** At present, the large majority of development programs (both governmental programs and those supported through foreign assistance) have made no effort to mainstream conservation. This is true even of the large majority of programs in the natural resource sectors. Supporting cross-sectoral efforts that build capacity to integrate biodiversity conservation goals, objectives, and monitoring into development programming (especially in the forestry, agriculture, and energy sectors) would clearly be one of the best ways to begin broadly addressing conservation needs. This would result in minor additional costs and, if operationalized, would allow donors, implementing organizations, and communities to adapt approaches that would be more supportive of conservation.
- **Provide additional assistance to support conservation in the Mid-Hills and Churiya:** To date, conservation efforts in Nepal have largely focused on the Terai and High Mountains. Little is known about biodiversity of the Mid-Hills and Churiya. Expanding conservation efforts into these diverse regions will assist in conserving the unique ecosystems (and the ecosystem services they provide) and the representative biodiversity they contain.
- **Provide assistance to capable local civil society organizations capable of working effectively within the context of the ongoing Maoist Conflict:** While the effects of the Maoist Conflict are numerous and varied, it is clear that the ability of government and, to some extent, the ability of NGOs to operate effectively in conflict areas is extremely limited. As a result, in many cases, there is no effective on-the-ground management (e.g., of forests, protected areas, etc.). One way to mitigate the impact of management loss stemming from the Maoist Conflict is for donors to work directly with community-

based organizations. This approach has been piloted by a small number of donors (including USAID and DANIDA), and appears to be working well.

- **Address inequity in land tenure and resource access/use rights, which are considerable factors underlying the ongoing Maoist Conflict:** The inequality of the land and natural resource tenure systems in Nepal is well documented, as is the role this has played in the evolution of the Maoist Conflict. While by no means an easy task, working to address the inequality in these systems will go a long way toward decreasing tensions.

In addition to the recommended actions listed above, the authors of this report also believe it would be advisable for HMG/N to begin developing a body of data that can be used to support the design and implementation of natural resource and conservation activities. These may include the following:

- Collect and maintain important biodiversity data in a standardized format and make this data accessible to all interested stakeholders;
- Assign responsibility for inventorying/monitoring both key indicator species and ecosystem health;
- On an activity-by-activity or project-by-project basis, allocate financial resources to support basic biodiversity monitoring on an ongoing basis; and
- Develop a cadre of conservation practitioners (e.g., trained conservation biologists and protected area managers) to fill the gap between research scientists and natural resource utilization specialists (foresters and fishery specialists).

7.0 USAID COUNTRY STRATEGY AND PROGRAM

7.1 REVIEW OF CURRENT/PROPOSED STRATEGY

USAID/Nepal's Country Strategic Plan (CSP) 2001-2005, was designed to focus on three key sectors: health, hydropower, and the governance of key natural resources and selected institutions. Through its programming in these sectors, USAID/Nepal strove to improve the impact of its assistance program by:

- Focusing on critical improvements in governance of key resources (water, other natural resources, and human resources including health and human rights);
- Strengthening essential policy, institutional, and decision-making mechanisms;
- Targeting assistance to a few key sectors of manageable interest (health, hydropower, democracy, and natural resources);
- Leveraging assistance through coordination and collaboration with other donors;
- Closely aligning USAID/Nepal programs with the overall USG priorities in Nepal; and
- Integrating the bilateral program with USG and USAID regional and global initiatives.

At the time of development, the CSP was comprised of three Strategic Objectives:

- SO2—Reduced fertility and protected health of Nepalese families;
- SO4—Increased private sector participation in environmentally and socially sustainable hydropower development; and
- SO5—Strengthened governance of natural resources and selected institutions.

In addition, the Mission would continue to support the closeout of two additional objectives early in the strategy period. These were:

- SO1—Increased sustainable production and sales of forest and high-value agricultural products; and
- SO3—Increased women's empowerment.

In this strategy, USAID/Nepal clearly acknowledged the important role that natural resources play in the lives and livelihoods of most Nepalis. The CSP also recognized the link between Nepal's rich natural resource base, good governance and economic growth, stating that, "better governance of the natural resource sector is not only necessary for economic growth and building rural democracy but also for the conservation of the nation's unique and extensive biodiversity."[34]

[34] USAID/Nepal, (November 2000). Country Strategic Plan FY 2001-2005.

In the years following the approval of the CSP, USAID/Nepal realigned its programs. This realignment was designed largely in response to the growing Maoist insurgency, but also allowed the Mission to accommodate planned programming changes. The result was a focus on four Strategic Objectives and one Special Objective:

- SO1—Sustainable forest and agricultural products;
- SO2—Health and family planning;
- SO6—Hydropower development;
- SO7—Democracy and governance; and
- SPO8—Ending conflict and expanding democracy.

Within these programming areas, activities most directly designed to address biodiversity and natural resource conservation were programmed through SO1 (Sustainable forest and agricultural products) and SO7 (Democracy and governance). Those activities most relevant to this assessment are briefly described below. As a note of interest, at the time of conducting this Biodiversity Assessment, the Mission's CSP had been extended by one year, allowing it to run through the close of the 2007 fiscal year.

7.1.1 SO1 Activities Most Relevant to Forest Management and Biodiversity Conservation

Project Title: Business Development Services: Marketing, Production and Services (BDS-MaPS)

Implementing Partner: International Development Enterprises (IDE)

The objective of the project is to raise incomes for micro and small enterprises in six districts of rural Nepal through interventions aimed at increasing the production (e.g., cultivation) and sale of high-value agricultural products and non-timber forest products, while limiting the collection/overexploitation of wild resources. The project has a focus on production and marketing of herbs and spices with an emphasis on strengthening private sector service providers. Beneficiaries include the landless and smallholders, including minority communities.

The BDS-MaPS approach focuses on the identification and reduction of inefficiencies in business-to-business interactions along the value chain, and helps to deliver a better product to consumers and more profit to businesses. The project seeks to enable the "pull" forces of market channels and destination markets in order to motivate smallholders and forest user groups. The project facilitates the development of the multi-level actors and links in the value chain.

7.1.2 SO7 Activities Most Relevant to Forest Management and Biodiversity Conservation

Project Title: Strengthened Actions for Governance in Utilization of Natural Resources (SAGUN)

Implementing Partner: CARE Nepal, in association with RITI, RIMS Nepal, and WWF

The goal of SAGUN is to improve the management and governance of selected natural resources. Specifically, the activity was designed to:

- Ensure the democratic management of Nepal's natural resources;
- Improve the performance of selected institutions to meet the principles of good governance; and
- Ensure the equitable distribution of benefits derived from NRM.

SAGUN has focused on building governance and management capacity to improve buffer zone management (CARE in the buffer zone of Royal Bardia National Park and WWF in Shey-Phoksundo National Park), community forestry (CARE/Nepal in Banke, Bardia, and Kailali districts and RIMS Nepal in Dhading District), irrigation management (RITI in 14 irrigation systems in the Terai), and hydropower development (CARE in three hydropower development project sites).

7.1.3 Public-Private Partnerships Most Relevant to Forest Management and Biodiversity Conservation

Project Title: The Nepal Tree Crop Global Development Alliance (NTC-GDA)

Implementing Partner: Winrock International

The focus of the NTC-GDA program is to develop high-quality specialty tea and coffee for international specialty markets. The program takes a business development services (BDS) approach to linking coffee and tea producers to appropriate production and processing technologies. In addition, the program works to build linkages between entrepreneurs in Nepal and international tea and coffee buyers.

Project Title: Tea and Coffee Global Development Alliance – Smallholder Mobilization through Improved Governance (TCGDA-SMIG)

Implementing Partner: Winrock International

Building on the success of the Nepal Tree Crop GDA, USAID has supported Winrock in implementing this new GDA in an effort to facilitate the rapid expansion of sustainable smallholder production through improved governance of producer and apex organizations for development of the tea and coffee industries. The goal of the TCGDA-SMIG is to increase the incomes of 11,500 households currently producing coffee and tea by 40 percent, facilitate new production by 6,000 smallholders within three years, and set the stage for over 100,000 households to become tea and coffee producers over the next 10 years.

Project Title: Certification and Sustainable Marketing of Non-Timber Forest Products (NTFP), Public Private Alliance

Implementing Partner: Asia Network for Sustainable Agriculture and Bioresources (ANSAB)

The goal of this project is to create market linkages for Nepali NTFPs and their producers. Specifically, the activity was designed to assist the NTFP sector to:

- Increase incomes and employment for Nepal's NTFP producers;
- Promote sustainable NRM;
- Institute a certification program for NTFPs in Nepal; and
- Expand responsible buying practices among industry members and the West.

The alliance includes U.S. product buyers (including Aveda and its industry partner the American Herbal Products Association) and expertise in certification (Rainforest Alliance) with a range of Nepali companies, NGOs, and donors.

This activity was scheduled to end in September 2005.

7.2 THE EXTENT TO WHICH CURRENT PROGRAMS ADDRESS PRIORITY CONSERVATION NEEDS AND RECOMMENDATIONS FOR FUTURE PROGRAMMING

The current CSP was developed with a clear recognition of the linkages between biodiversity conservation, good governance, and economic growth. The Mission has initiated and supported efforts designed to promote decentralized natural resource governance and management, and that strive to improve rural livelihoods and enhance the rural economy. As identified in Sections 5 and 6, the ability to effectively address issues of good governance and livelihoods improvement/economic development are absolute necessities if conservation is to succeed in Nepal. The ongoing Maoist Conflict, also noted in earlier sections, further complicates efforts to address governance and livelihood needs, and poses considerable "new" obstacles to biodiversity conservation.

Through the current CSP, USAID/Nepal has targeted the need to improve natural resource governance and increase livelihood and economic benefits associated with conservation. These efforts have experienced some success in terms of their ability to address both habitat loss/conversion and the overexploitation/illegal exploitation of biological resources. However, more could be done to focus Mission programming to increasingly address these threats, and to more effectively address conservation needs in light of the ongoing Maoist Conflict.

Given the heavy reliance of rural Nepalis on the natural resource base, the natural resources sector presents an excellent opportunity to further promote good governance and equitable economic development in Nepal. The following recommendations are designed to further assist the Mission and its implementing partners in addressing priority tropical forest and biodiversity conservation needs. For organizational purposes, the suggestions are divided between three headings (governance, livelihood/economics, and conflict), although there are clearly overlaps between and among these.

Governance

- Good governance of natural resources requires adequate representation and participation of the various users. It is often the poorest segment of society that is the most dependent on the natural resource base. Conservation-related efforts that do not effectively target and ensure equitable participation of users in all levels of the management process (including decision making) will rarely succeed in achieving the goal of equitable development.

- While there is a definite need to directly link conservation activities to livelihood/economic development, leading with livelihood/economic activities in the absence of a structure for good governance can increase the potential for elite capture of economic benefits. In an inequitable setting, investing in good governance in advance of the expectation of economic benefits is important to the long-term success of integrated conservation and development activities.

Livelihood/Economics

- Targeting appropriate livelihood/economic interventions that are compatible with conservation goals is especially important in and around protected areas. Livelihood/economic activities that are selected and promoted without regard for conservation goals and needs may, in fact, negatively impact on conservation.

- Promoting a diversified "basket" of livelihood/economic options is an important step in balancing risk and promoting returns, especially for the more marginalized subsets of a community.

- While promoting high-value commodities for export markets may be an important aspect of natural resource-based enterprise activities, it is also important to not overlook opportunities to develop

products and services for which local demand exists. Similarly, there is also a pressing need to ensure that those involved in enterprise development activities have the business skills/development training necessary to adapt and respond effectively to changes in the market.

Conflict

- The Maoist Conflict has significantly limited the capacity of government and many international NGOs to function effectively in promotion of biodiversity conservation and economic development. Working through capable local community-based organizations that have the trust of the local communities (and, if necessary, building the capacity of local partners) presents a favorable programming option.

APPENDIX A: SOW FOR BIODIVERSITY (FAA 119) ANALYSIS

I. PURPOSE AND OBJECTIVE

The purpose of these dual assessments is to assist USAID/Nepal to comply with the provisions of FAA 119 in developing their Country Strategic Plan (CSP) beginning in FY 2006:

1. Conduct an assessment of biodiversity conservation needs in Nepal for the purposes of complying with section 119 of the Foreign Assistance Act of 1961, as amended, and country strategy guidelines under ADS 201.3.4.11 and ADS204.5.

2. Based on this assessment, to assist the Nepal Mission to define how its proposed CSP contributes to conservation needs, as required by agency regulations. This assessment could also serve as a planning tool to assist USAID/Nepal to better integrate environmental protection into their overall program.

2. BACKGROUND

In amendments to the Foreign Assistance Act of 1961, Section 119, enacted in 1987, Congress imposed mandatory "Country Analysis Requirements" related to the conservation and sustainable use of tropical forests and biological diversity on the U.S. Agency for International Development. In this amendment the legislation states:

FAA Sec 119 (d) \77\ Country Analysis Requirements: Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of:

> (1) the actions necessary in that country to conserve biological diversity, and
>
> (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

3. STATEMENT OF WORK

The ARD Assessment Team, composed of an expatriate Team Leader/Natural Resource Specialist, and a Nepali Biodiversity Specialist will:

1. Describe the legal and institutional framework for biodiversity conservation in Nepal and identify gaps or weaknesses. Describe Nepal's participation in international conventions related to biodiversity and forest protection.

2. Describe social, economic, and political conditions in Nepal that are relevant to biodiversity conservation.

3. Assess the current status of biodiversity in Nepal including threats, actions being taken to conserve these resources (e.g., protected areas, law enforcement, community management), and additional actions

required to conserve these resources. Identify which actors (e.g., Government of Nepal, NGOs, or donors) should take necessary actions and the current capability of these groups to take required action.

4. Describe current uses of biodiversity resources and the values associated with these uses.

5. Determine if actions planned under USAID/Nepal's proposed Country Strategic Plan (CSP) could positively or negatively affect biodiversity. If negative impacts are possible, propose revisions to avoid, reduce, or mitigate these impacts. Identify specific actions that could be taken by the Mission, within the context of its proposed CSP, to conserve biodiversity.

The Assessment Team will go through the following process to conduct the assessment:

A) Data Collection:

1. Prior to departure from the US, consult with the ANE Bureau environmental staff to obtain technical guidance. Contact US-based conservation organizations to gather information about their programming in Nepal.

2. Upon arrival in Kathmandu, meet with the USAID assessment supervisor and other Mission staff to get an understanding of the Mission's ongoing assessments, program goals and objectives under its proposed strategy. The Mission also may provide the team with advice and protocol on approaching USAID partners and host country organizations with respect to this assignment. The team will discuss organizations to be contacted and any planned site visits with the Mission and coordinate as required.

3. Meet with all SO Teams in the Mission to gain a full understanding of the country program and strategy. The Assessment Supervisor will help facilitate interaction and information exchange with other assessment teams.

4. Obtain, review, and analyze existing documentation on biodiversity conservation in Nepal, including those prepared by the Government of Nepal, donors, international organizations, and national and international NGOs. Examples of such documentation include the previous Nepal 119 Assessment prepared in 2000, the National Biodiversity Strategy and Action Plan (NBSAP), the National Environmental Action Plan (NEAP), and Global Environment Fund (GEF) project reports.

5. Interview relevant government officials, donor organizations, NGOs, and others involved in forest and biodiversity conservation, or cross-cutting issues to learn about their programs and views on relevant issues.

6. Conduct site visits to better understand the on-the-ground situation, if conditions permit.

B) Analysis:

1. Summarize the status of biodiversity in Nepal;

2. Summarize the social, economic, institutional, legal, and policy context for their use and conservation, including actions currently being taken by government, other donors, NGOs, and the private sector.

3. Identify the key direct and indirect threats to biodiversity.

4. Identify the actions necessary to conserve and sustainably manage natural resources and biodiversity in Nepal in the current context based on analysis of country donor and NGO responses to meet these needs.

C) Report:

Prepare a report describing the analysis and conclusions. This report shall clearly meet the legal requirement of FAA Sec 119 by:

1) clearly articulating the actions necessary to conserve biodiversity in Nepal, and

2) clearly describing the extent to which actions proposed in the new USAID/Nepal strategic plan meet the identified needs with the understanding that FAA Section 119 do not require USAID to invest in conserving biological diversity, although is encouraged to do so under these sections of the FAA.

The report, of between 30 and 60 pages in length (excluding appendices), shall include sections covering the following topics:

Title Page, including the date of completion of the analysis report

Table of Contents

A. Introduction, describing the purpose of the analysis and methods used in conducting it, including the timing of the analysis in relation to the timing of USAID strategy development.

B. An overview of the status of biodiversity in Nepal, including ecosystem diversity, species diversity, threatened & endangered species, genetic diversity, agricultural biodiversity, ecological processes and ecosystem services, and values and economics of biodiversity and forests. A map of potential natural vegetation and of land use or land/forest cover should be provided if available.

C. An overview of the social, economic, and political context for sustainable natural resources management and the conservation of biodiversity and forests in Nepal, including the social and economic environment; institutions, policies, and laws affecting conservation; the national protected area system including all IUCN categories of protected areas; laws affecting the protection of endangered species; and participation in international treaties. A map of the protected areas system should be provided if available.

D. A review and summary of government, NGO, and donor programs and activities that contribute to conservation and sustainable natural resources management, and an assessment of their effectiveness, strengths, and weaknesses.

E. An assessment of the threats to biodiversity, including direct threats and indirect threats or root causes of the direct threats.

F. A list or description of the actions necessary to conserve biodiversity in Nepal, logically flowing from the review of the threats, and what is currently being done by government, NGO, and donor programs that address those threats.

G. A review of the proposed USAID/Nepal strategy and program, including all SOs and SPOs, followed by an analysis of the extent to which actions proposed for support by USAID help meet the needs identified in F. This section should also point out any threats to biodiversity and forests from activities proposed for USAID support, and suggest mitigating actions. It should also identify opportunities for cross-cutting, cross-sectoral linkages with proposed activities (for all proposed SOs and SPOs), especially those that would be low cost and/or would enhance the effectiveness of the proposed activities.

H. All references used and cited in the report should be listed; web URLs for information resources should also be provided.

I. Appendices to the report should contain, at minimum the SOW for the analysis, biographical sketches of assessment team members, a list of persons contacted and their institutional affiliation, and other background or supporting material as needed.

** Further notes or requests for information to be included in analysis report may be added as desired by the Mission.

4. DELIVERABLES:

1. Presentation of findings and recommendations of the assessment to USAID/Nepal.
2. A draft report covering each of the points in the section above submitted to the Nepal Mission and the ANE Bureau.
3. A final report that incorporates comments on the draft.

5. ANTICIPATED LEVEL OF EFFORT

The LOE for this assignment is approximately 48 person-days (24 expatriate and 24 Nepali), to be implemented concurrently with an assessment of community-level natural resource conflict in Nepal. A significant amount of information collection and analysis will serve the needs of both assessments.

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Mr. Pembardar Karki	Member	CFUG, Karki (Kaski)	
Mr. Ganesh Karki	Member	CFUG, Karki (Kaski)	
Mr. Bala B. B.K.	CFUG Employed Forest Guard	CFUG, Karki (Kaski)	
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Twelve members of the: Modi Welfare Coordination Committee	Members	Birethanti, ACAP	
Three members of the: Naudanda Drip Irrigation Group	Members	Naudanda	

APPENDIX C: DOCUMENTS CONSULTED

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